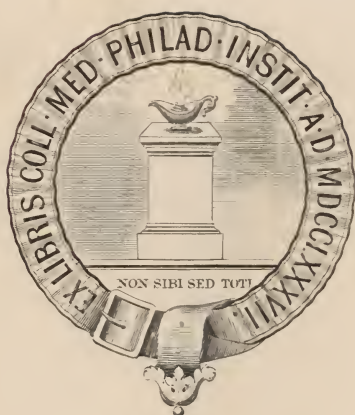




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THE

DENTAL COSMOS:

A

MONTHLY RECORD OF DENTAL SCIENCE.

Devoted to the Interests of the Profession.

EDITED BY

J. D. WHITE, M.D., D.D.S.

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Observe, Compare, Reflect, Record.

VOL. I.

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THE
DENTAL COSMOS.
NEW SERIES.

VOL. I.

PHILADELPHIA, AUGUST, 1859.

No. 1.

OUR ENTERPRISE.

The present number introduces a new series, with a new name, to the friends and supporters of the *Dental News Letter*. The publishers know, as well as a large experience and a good out-look can teach them, what they are about; and they have a well warranted confidence that the profession which their enterprise concerns, will understand this forward movement just as well. The last number of the *News Letter* finished the twelfth year of its publication. The changes that have passed in that period upon the profession and upon our relations to it, have brought along with them the necessity, either to enlarge our quarterly or to change it into a monthly. The character and aim of the paper settles the question clearly in favor of a quickened circulation. Our object is to furnish the freshest and most varied matter for the service of our readers that the practical progress of the profession and the current reports of Dentistry and Medicine can be made to afford. The gréater frequency of our issues, beside giving us the required room and scope, also provides happily for that promptitude of publication which the tide of progress demands; and our arrangements are all perfected in the most promising conformity to this enlarged design.

It will be observed that the editorial corps is organized so as to secure the services of men specially qualified in the several departments to which, in a natural and orderly distribution, belong the whole range of papers which a dental periodical must embrace. Dentistry is a science, and its cultivation, in all forms, is necessarily systematic. A dental journal, well adapted to its use, must be sedulously attentive to the gathering and effective presentment of the constant accumulations of new facts and new and useful views daily developing themselves in general practice. If any source of improvement can be rightly esteemed more valuable than another, this is the one entitled to such preference. This department of the paper will be carefully cultivated, well managed, and fairly and honorably administered by the gentleman to whom the charge is specially committed.

Dental literature, in all the forms in which it flows from the press, demands such selection, criticism, and condensation as shall best afford its spirit and worth for practical and theoretic uses. This department, committed to eminently competent hands, we can also promise will be well kept up; and care will be taken in translation, selection, and abridgment, to secure a transfusion of all that is best in the publications of our own country, England, and the Continent. We are willing to invite high expectations in this respect, feeling certain of meeting them satisfactorily.

The range of the other chief division of the work is rich in capabilities of service to the zealous cultivators of dental science. General Medicine, Surgery, and their associate sciences, have much available aid to afford our specialty, and the Editor of this department will do it ample justice.

Our plan has these general features, and the aim is to bring them out fully and effectively. It will be made to embrace in its details all the useful facts of professional experience which can be gathered—all the improved modes of practice, which the best heads and hands are constantly developing; the chemistry, metallurgy and mechanics of the art, in whatever they are useful or promising; and along with all this, due place will be given to theory, discussion, criticism, to history, biography, and bibliography, as they can best be blended and arrayed for profitable consideration.

A good deal of work done upon a great deal of matter will reduce it to a presentable form and convenient compass. We shall have hands and heads enough engaged to turn out their work clear, compact, and comprehensive.

If "THE DENTAL COSMOS" shall tolerably perform all this promise, it will deserve its title—that is, it will very fairly cover the dentist's *world* of science and practice—it will be *universal* in the range of its accommodated application; and, it will be *orderly* and *systematic* through all its comprehensiveness. The meaning of the title is exactly the intention of the publishers. Both the title and the intention would be too limited if they had less scope; and the publication would be a failure if it fell short of either. Our readers, we are well assured, will not make the mistake of excepting to the largeness of either aim or name—they will reserve their censure for the non-fulfilment, if it should happen, but which we intend to prevent, and so escape it.

Dentistry is advancing with such prodigious rapidity, that the journals intended to register and promote its progress must be quick in movement and richly varied, and well compacted in matter. The 6,000 practitioners of this country have so much to say to each other of immediate interest to all, that they need very free and frequent opportunities of exchange. Our own list of readers is so large that the thinkers and workers among

them must be brought nearer to each other in point of time, and more intimate in their professional fellowship. The use and habit of such improved intercourse will grow upon them, until they will very soon feel that a month is long enough to wait for all that has been transpiring in practice and teeming from the professional press in the mean time. If General Medicine, Surgery, and Obstetrics require almost a *newspaper* circulation of intelligence among their practitioners, Dentistry, which outstrips them all in rapidity of growth and improvement, much more requires a rapid periodical publication. Books, reviews, and quarterlies have their appropriate uses, which journals of greater frequency and less concentrated matter do not displace, but rather enhance their usefulness, and extend the demand for them, by stimulating study and quickening the spirit of research over a broader field of laborers. We wish to serve all the interests of our circle of readers, by offering them a medium of publication which may happily break up their habitual reserve, and open the spring-heads of improvement, by providing a channel through which they may flow into the currents of general knowledge. Our columns, aiming specially to supply the daily recurring wants of every advancing practitioner, will serve to effect their exchanges of thought and experience. We invite such contributions for all reasons, and especially for the benefit of the contributors themselves; for every man who endeavors to teach, is at least sure of learning something in the endeavor. His examination will be made more exact—his opinions will be the better considered. If he has a doubt worth resolving, let him publish it—the general judgment which it meets will settle it. Opinions, still crude and premature, will get themselves sifted; and the idols which he worships in his cave will get a corrective exposure in the open light of a general criticism. If every member of the fraternity thus works for every other, they will all, in like manner, work for him; or, as it was once said by Chief Justice Gibson, when an admiring rustic told him that he must be the greatest lawyer in the State, “I ought to be,” said the Judge, “for I have all the lawyers in the State reading and studying for me all the time.” That is our idea of a dental journal—a means of making every dentist in the country study and work for every other, and supplying them, besides, with all that an able Faculty of Editors and professional writers can extract from the world of learning for their use.

“THE DENTAL COSMOS” is pledged to the dental public to do whatever a journal can, for the good cause of professional improvement—for the profession’s advancement in its usefulness, self-respect, and public regard, and, for strengthening fraternal courtesy, justice, and co-operation among the men who have the destiny and responsibility of the profession in their hands.

ORIGINAL COMMUNICATIONS.

PRACTICAL HINTS.

BY J. D. WHITE.

Since our article on this subject appeared in the April No. of the *Dental News Letter*, we have been written to by several dentists to continue the subject, and especially in "detail." We have always been in the habit of avoiding detail as much as possible, for fear of making our articles prosy, or uselessly occupying paper and wasting "printers' ink." We do not know now whether we will give the desired detail or not, but we will try, and if we fail, the cause must be attributed to the want of capacity, not of the will. We will first direct attention to the treatment of an exposed pulp, but, if agreeable to the profession, we will not confine ourselves, under the above caption, to that subject alone. When a patient applies to us for operations upon their teeth, and a pulp is discovered to be exposed, the question will arise in the mind of the operator, Shall I attempt to save this tooth? He will, of course, consult his patient to some extent if it be a molar tooth, but if a front tooth, or a valuable one to the patient, he will ask no questions, but proceed to do his duty, as the patient is not expected to know to what extent the dentist can push his operations. We never extract a tooth which we believe we can render, by proper treatment, valuable to the patient. We have saved thousands of teeth for our patients, who had been in the habit of having better ones extracted before they came to us, because they knew no better, and their dentists never having proposed attempting to save them. It is now an every-day remark by our patients, "if I had known you before, I might have had all, or nearly all of my teeth, as I have had better ones than you have plugged, extracted all the early part of my life, but I did not know any better, and my dentist never tried to save a tooth when the nerve was exposed." We make this statement, not by way of boast, but to assure the young practitioner, or even the older, who has not yet made up his mind on a definite rule of practice, that in this lies more the fate of his success in practice, than all the rest of the important branches of his profession. In deciding whether he will attempt to save such a tooth or not, he must consider the temperament of his patient, whether it will bear the loss of a pulp in a tooth; he must inquire whether they have suffered much on previous occasions when nerves have been exposed, if any had ever been exposed, and notice whether there are already any teeth in the mouth which have lost their pulps and are doing well; if there are any doing well which have been badly treated or left to nature, he may attempt the treatment with impunity. If there be a natural and healthy, or dry,

or non-vascular condition of the gums, or looseness of the tooth in the socket, he may expect fair success in the treatment; if, on the contrary, the gums are full, spongy, disposed to ulcerations of their margins, or there be any roots in the mouth which have excited ulceration of the gums, and seem to have been loosened up from the sockets by thickening of the alveolo-dental membranes, as if nature was endeavoring rapidly to get rid of them, he may not expect much better success if he destroys a pulp by ordinary process of treatment. He will also consider whether the patient can spare the tooth; if the mouth would be better without, or better with it; and point out such advantage or disadvantage to the patient. If the patient be intelligent the operator can render himself understood, and secure the respect and confidence of his patient by manifesting such interest in their welfare; and whether he may be successful or not under such circumstances, he will lose no reputation. If there are no circumstances by which the dentist can judge whether the tooth will bear treatment or not, if it be a first case for the patient, he must inform him to that effect before he attempts the treatment. If the teeth generally in the mouth have well-formed roots, and are well set in the sockets, he may consider his case favorable. If the tooth be *too young*, that is, recently erupted, say only two or three years old, the roots, perhaps, are not fully formed, and the chances will be against him.* When young patients come to us we always decide for ourselves whether the tooth be old enough to be treated or not, especially if it be a molar, because it is not worth while to treat such a tooth without a fair chance of success, without being followed by an abscess; but we have frequently treated front teeth in young persons where we knew the roots were not fully grown, and taken the chances of an abscess, as it would be the least of two evils. Children not unfrequently meet with the accident of breaking off one or more of the front teeth, so as to expose the nerves; in such cases, as a general rule, we destroy the pulps and plug the roots, and as much of the crowns as are left, because the extraction in such cases not unfrequently leads to considerable deformity of the front part of the arch. It is not unfrequent that adults apply to us with a nerve exposed in a wisdom tooth, and all the rest, or nearly all in the mouth are good, and the tooth can well be spared. In such cases we advise their extraction, and generally our advice is adopted. If the patient is not willing to do so, and we think it is a doubtful case, we destroy the pulp to prevent pain, and let the case go, to decay down, and let time loosen the roots, and then we extract them. *In these days of fear of having a tooth extracted, since it can be done by so many ways without pain, we never strongly urge our patients*

* We wrote an article on the age at which it was prudent to attempt to destroy a pulp in the different classes of teeth, many years ago.

to resort to so painful an operation without a dire necessity, as we never use an anesthetic. If we have said enough to decide upon the treatment of an exposed pulp of an adult tooth, the next question is, what course shall we pursue? We will answer, that there is but one course to adopt, and that is, to destroy its vitality and remove it from the tooth. We know that some of the best in our profession yet differ with us in regard to the propriety and legitimacy of this course of practice, but with us there is no compromise; it is decided beyond the question of a doubt. We also know that a large number are opposed to the use of *poison* for destroying the vitality of the pulp, but we believe this to be due more to the courage of the operator than the nature of the poison employed. Some operators are willing to destroy a nerve, but are not willing to employ a certain and sure way of doing it. From some cause they prefer to tease the nerve to death, instead of killing it at once. If it is to be destroyed at all by the dentist, why not do it in the shortest space of time, and with the least possible pain? It may be laid down as a rule, that the longer we keep up an impression on the pulp by irritating agents, without destroying its vitality, the greater will be the liability to perio-dental inflammation and alveolar abscess.

(To be continued in next Number.)

THE PRESERVATION OF DECIDUOUS TEETH.

In offering a few suggestions to the profession on the preservation of deciduous teeth, I trust it will not be out of place to preface them with some remarks respecting the temptations which beset the operator in performing his duty in this particular branch of practice.

There is no class of patients with whom the dentist meets, where he finds it more difficult to operate than upon children, when decay from constitutional or other causes has attacked the teeth. They are not old enough themselves to understand the importance of preserving them; and generally, parents or guardians are too heedless or ignorant to appreciate the future comfort of the child. The operator has no one to aid him in performing this difficult duty; hence, the temptation to operate quickly, with the least trouble, and in accordance with the wishes of the ignorant, by extracting the offending organ, without first using proper means for its preservation.

It is to the young practitioner particularly that I address these remarks, and I ask that, in justice to himself, and in justice to his young patients, he will hesitate before acting hastily and adverse to the best interests of children. He must remember, that in offering his professional services to the public, he incurs an obligation to discharge a duty which requires more than a mere temporary relief from pain: he has a duty to perform for the future health and development of human beings.

I know the plea is often urged that parents are unwilling to give a compensating fee for filling and other operations upon the deciduous teeth. Such, in many instances, is the case; but even these would be fewer if the dentist, thoroughly understanding the importance of it himself, would take the opportunity and trouble to explain to them the evils resulting from the premature loss of these teeth. If such a course fails to produce the desired effect, then do your duty to the little sufferer, and let the consciousness of having done so be your temporary reward, and a more permanent one will be sure to follow, in the increase of your practice, from the fact that your conduct is gaining the confidence of an intelligent public.

In this paper I shall not attempt to speak of interrupted dentition, its cause, and cure, but confine myself to a few general remarks on points essential to a healthy eruption of the teeth, the proper means of preserving them, and the evils arising from their premature loss. In securing the first of these, there is no one thing that does more toward it, and is more easily attended to, than properly cleansing the mouth; though this of itself will not suffice, yet with it the risk of a tedious eruption and imperfect teeth is greatly lessened. In order to attain this end, the mouth from early infancy should be kept pure and clean, which may be done by regularly washing it previous to the eruption of the teeth, commencing as soon as practicable, and continuing as often at least as once a day for eighteen or twenty months, or until we have the eruption of the deciduous teeth completed. After this, the use of a small soft brush twice a day is desirable, being careful to have the teeth perfectly free from any impurities, or food that may become impure, before putting the child to sleep for the night: the reason for this precaution is so apparent, that it will not be necessary to mention it.

With this course we have cleanliness secured, and the battle is half fought. Next to this, have the teeth frequently and carefully examined, and on the first appearance of decay, remove it. If the cavity is sufficiently large to receive a solid filling of gold, or Hill's stopping, put it in; if only superficial, polish the surface with pulverized pumice or spar. This is the course I would have dentists advise their patients to pursue, or have pursued, with their children; but, unfortunately for the child, the dentist is seldom consulted until the decay has progressed so far, that suffering has ensued, either from exposure of the nerve, a severe spell of periostitis, or alveolar abscess and its accompanying results. It is then that the dentist is called upon, with positive instructions to extract the tooth. Here arises the temptation for injudicious treatment, and it is with the view of staying this reckless kind of practice, that I am induced to offer a few suggestions upon this subject.

Let us first consider the course to be pursued where the dental pulp, being apparently healthy, though deprived of its natural protection by decay, is subject to irritation from the contact of foreign substances. With the child comes to us the complaint that pain is experienced in attempting to eat, which is relieved by cleansing the teeth, but again ensues when eating is resumed. The plan to be pursued under such circumstances is, to carefully cleanse the cavity, taking care not to let the instrument come in contact with the exposed pulp, for in so doing, the child experiences pain, and is unwilling to have you proceed further; but with care you may avoid this, and complete your operation. After cleansing the cavity, dry it as well as practicable with cotton or spunk; (I prefer this to paper; it is less harsh, hence, less liable to produce pain;) then place in your paste, such as you use in ordinary cases for destroying the nerve, and there make it secure by placing over it cotton moistened with gum sandarac varnish, being careful not to force it down on the pulp, which would cause much unnecessary pain. In placing the paste in the tooth, abandon the small pledget of cotton or lint, which is generally used in getting it from the bottle, and take instead a small excavator, and carry it to the tooth with this instrument. In doing this, two advantages arise: first, we have not the unnecessary quantity of creosote taken into the mouth,—an excess of which is liable to come in contact with the tongue or mucous membrane, cauterizing and destroying portions of it. The second advantage is, that we have more room for the cotton and varnish, which is intended to secure the paste and protect the mouth from its destructive effects. This should remain in the tooth from twelve to twenty hours, in proportion to the age and health of the child, and the density and development of the tooth. As to the exact time it should be left in each individual tooth, no positive directions can be given; each operator must use his judgment, and be governed by surrounding conditions at the time; but that it can be left much longer in some mouths than others, without injuring the teeth, there can be no doubt.

On the return of your patient, your course is the same as in ordinary nerve cases, care being as necessary in these as in the permanent teeth. Those who have filled deciduous teeth are aware of the difficulties attending the operation, and of the impossibility of putting as much pressure upon them as the permanent ones; but of this there is little need, for the teeth, when in this condition, have, in the majority of cases, only to be preserved from two to four years, so that an ordinarily solid gold filling will readily last that long, and if Hill's stopping be used, but little pressure is necessary. One thing, however, is essential, and that is patience on the part of the operator. Without you have a good share of this, it is hardly worth your while to attempt to operate for children of any growth.

In using the Hill's stopping, adhere to the long established custom of filling the pulp cavity with gold, moistening the first piece with creosote; which precaution will do much toward lessening the probability of periosteal inflammation or alveolar abscess following the operation. I am aware there is much prejudice existing against the use of arsenic, or any arsenical preparation being applied to the deciduous teeth, on the ground of injuring the permanent ones lying so immediately behind them. Such evil results I have never witnessed, nor do I see how they could occur, where proper care was taken in its use. If the objection is based upon the ill use of it in the hands of unskillful practitioners, the same could be urged to its use in any form, and for any purpose.

In considering the course to be pursued where the child, when placed in our hands, is suffering with periostitis or alveolar abscess, we have several things to be observed: 1st. Will it be *weeks, months, or years* before the probable eruption of the permanent tooth, which is to occupy the place of the offending organ? If we can decide, without doubt, that it will be but a few weeks at most, it is advisable to extract it at once. If it will, however, be months, and probably years, then another course is desirable, unless the disease is of such a nature as not to yield to palliative treatment, and the continuance of it is likely to injure permanently the surrounding tissue. Of this, however, we can seldom judge, without first making the effort to correct the evil, by the use of the various remedies we have at our command, such as lancing, leeching, and cold applications to the gums; also, such disinfecting agents to the pulp cavity of the tooth as creosote, or spirits of camphor, etc. In pursuing this treatment we may retain those teeth for months; and even though the child should occasionally suffer some pain, it were better so, than that the tooth should be extracted so long before the permanent one is ready to take its place.

In preparing this paper, it is not my purpose to mark out a system of practice to be pursued indiscriminately, but to urge upon my fellow members of the profession the necessity of employing every means within their reach to prevent the premature removal of the deciduous teeth, and in that way lessen the many evils arising from such summary treatment. In commencing this article, it was my intention to have enumerated some of these evils, and spoken of their connection with, and effect upon, the permanent teeth; but it has already grown to a greater length than admissible. Hoping that it will have the effect to call out other efforts upon this interesting subject, I leave it to abler heads. C. N. PEIRCE.

The above is a very interesting paper, and we hope our contributor will favor us again.

J. D. W.

DECIDUOUS TEETH.

What shall we do with deciduous teeth in which the nerves are exposed? is a question that I have often asked myself, and one that I have no doubt has puzzled many a young man in the early years of his professional career. And, in sober earnest, it is a troublesome question: one that has never been solved to my satisfaction. Is it possible to treat them as we do permanent teeth, with arsenious acid? as we can never tell, to an *absolute certainty*, whether or not absorption has taken place in the fangs, and to what extent. If it has commenced, should one risk putting arsenic in contact with the pulp, by which it might be transmitted through the enlarged opening in the fang to the surrounding tissues, and there be absorbed into the system to the serious detriment of the child's health? as the tissues of a young person are much less compact, and the system much less capable of resisting the injurious effects of so powerful an agent as arsenic, than those of an adult.

But suppose the dose should not be large enough to affect the general system, and it is not very probable that it would be; might it not affect the permanent tooth injuriously, and blight its future prospect of becoming a lusty canine or a portly molar?

But granting there would be no bad effect from the arsenic in any way, would it be proper even then to fill the fang of a temporary tooth with metal, or any other substance? If the tooth should receive sufficient vitality from the periosteum, for absorption to go on in the root in order to make room for the permanent tooth, the metal would not be absorbed, and the tooth would have to come along side of it, making as fine a specimen of irregularity to be corrected as if the temporary tooth had been extracted in the first place. Would it not be equally as bad to fill the crown only, and leave the root; for then we will soon have an alveolar abscess and its attending annoyances.

When children are brought to me with exposed nerves, I have been in the habit of cleansing the cavity as well as possible, and applying chloroform, creosote, or some remedy of the kind, and advising that it should be renewed if there be a recurrence of the pain. But I have found them all to be unsatisfactory. Parents will come back complaining of the impossibility of their sleeping, as "the child cries all night with the tooth-ache," and insist upon having the tooth extracted. After explaining to them why it would be improper for me to comply with their wishes, and advising them to try again those simple remedies, they generally go away prepared to bear with the little sufferer until nature relieves them.

Unless an abscess has formed, I never extract a deciduous tooth until there is some signs of its successor. But when there is an abscess, I

always remove the tooth,—thinking, of the two evils, the premature extraction is the least.

But, as I remarked before, I am not satisfied with my success; and if you, Messrs. Editors, will be kind enough to throw a little light upon the subject, by suggesting a better course of treatment, you would be conferring a favor not only upon me, but, I presume, upon a goodly number of your younger brothers.

W.

We will endeavor to answer the above in our article on “Practical Hints.”

J. D. W.

FACIAL NEURALGIA, PRODUCED BY INDIGESTION.

MESSRS. EDITORS:—

Permit me, through the medium of your journal, to report the following case for the benefit of the younger members of the profession, who may often be at a loss to locate the cause of that painful affection known by the term *Neuralgia*; and especially of that form called *Tic Douleureux*, or facial Neuralgia.

Mr. J. Y., aged seventy, after having been in the hands of an herb-doctor for about two years, with the hope of being relieved of an intensely painful Tic Douleureux, applied to me in the spring of 1854, for the removal of two or three fragments of roots of the superior incisor teeth, all the other teeth and roots of the upper jaw having been long since extracted.

His suffering, at the time of my first visit, was of the most extreme character; a breath of air, the slamming of a door, or even an allusion to his disease, being sufficient to produce a violent paroxysm. The irritation, although reflected, as it afterwards proved to be, appeared confined principally to the superior and middle branches of the par trigeminum, or fifth pair of the left side. His suffering had been so intense, and long-continued, that there was considerable swelling, and tenderness upon pressure, along the course of all the ramifications of the fifth pair; and all the topical applications, together with the internal remedies of his herb-doctor, proved of no avail. Becoming dissatisfied, he applied to me in a month or two after my first visit, to treat him *medically*; and, in order to give me all the advantage that I could desire, he left his home, which was five or six miles distant, and took up quarters at a hotel convenient to me.

Knowing that his case was a desperate one, although not suspecting the *causus morbi*, I determined upon an active and energetic course of treatment. Directing my efforts to the removal of the existing irritation, and I might also say inflammation, I established an issue in the back of his neck, which, together with blisters to his temples, produced a considerable amount of counter-irritation. The external use of aconitine, and the

internal administration of the citrate of iron and quinine in full doses, produced a marked alleviation; but just at the time when hope was brightest, another severe paroxysm would fill us with disappointment, and almost compel us to declare that there is no virtue in medicine.

Almost two weeks having been thus uselessly expended, together with not a small amount of medicine and patience, and being on the point of abandoning the case, my old friend remarked to me, as I was dressing his issue, that there was one fact of which he was fully satisfied, and that was, "*that his stomach was all right, for he could swallow great pieces of meat, and they did him no harm.*" Those who have anxiously watched over an interesting and difficult case, can enter into my feelings of gratulation, for like the ancient philosopher, I was almost on the point of exclaiming "Eureka! Eureka!" Remembering the old maxim, "*tolle causam, cessat effectus,*" I directed my efforts to the improvement of my patient's digestion, and I am happy to say, that after following my advice in regard to proper mastication, and the use of proper articles of food, he, although an aged man, is now in the enjoyment of excellent health, without the least return of his old tormentor, which had become the bane of his life.

Although it is not the province of the class of practitioners for whom this is especially intended, to pay much attention to the medical treatment of their patients, it may, nevertheless, be of some benefit to them to have their attention especially directed to the cause of failure in my first effort. Had I inquired carefully, as I should have done, into the condition of the alimentary canal of my patient, I would have been spared many anxious moments, and could have given him that relief, for which he is now so grateful, at an earlier day. I make this frank acknowledgment with the hope that those who may have to treat the diseases of their fellow mortals, will not be men of one idea, but, in treating neuralgia, remember that it may be produced by irritation in a remote part; and that, if after careful investigation, we can find no explanation of pain in the region in which it is felt, we should look for some condition that may explain it in the track of the nerve distributed to the part, or in the parts supplied by branches of the same nerve. We should also look for indications of disease in the brain or spinal marrow; and, if still unsuccessful, we should extend our investigations, and inquire whether there may not be some disorder or cause of irritation elsewhere, which, operating through the nervous centers, may have occasioned the sympathetic pain of which our patient complains.

J. L. SUESSEROTT.

CHAMBERSBURG, July 8th, 1859.

SPONTANEOUS NECROSIS OF THE ALVEOLAR PROCESSES.

BY J. M'CALLA, D. D. S.

Miss S. N., aged about twenty-five years, of sanguino-lymphatic temperament, applied to Dr. W. N. Amer for advice in relation to a diseased condition of her mouth; numerous remedies had been previously employed, but without any apparent benefit. We were called upon by the doctor to inspect the case. We found the right cheek slightly swollen, and sensitive to the touch. The teeth of that side in the upper jaw were loose, not from recession of the gums and processes, but from what appeared at first sight to be an extensive fracture; the gums presented a purple appearance, dotted in numerous places with fistulous openings, from which a copious discharge had been going on for a considerable length of time. The patient was subjected to a rigid cross-examination without eliciting anything tending to show that the trouble was the result of a mechanical injury. None of her teeth were filled—no nerves destroyed—neither pivot or any other kind of artificial teeth were ever worn by her; neither could it be traced to a fall or blow, so that we were forced to the conclusion that it was a case of *spontaneous necrosis*, and advised the removal of all the parts affected. She said it would be necessary first to get the consent of her parents, and for this purpose left, promising to return in a week or two. During her absence she consulted two or three physicians, one of whom informed her that a surgical operation afforded the only means of relief. To this she readily consented, and again applied to Dr. A. We first removed all the teeth, from the right central to the second molar inclusive, and, with a pair of spicula forceps, detached the loosened sockets and fragments, including the transverse septa, gave her a suitable wash, and requested her to call again in a few days. Two weeks afterwards the parts were found to have assumed a healthy aspect, and the lady is now wearing artificial substitutes, so arranged as to restore perfectly the contour of the face. When cases of this kind occur, and no clue can be found leading to the discovery of any external cause, we should suspect a constitutional taint, or a morbid state of the blood, of which the lesion is the local manifestation, and which, reacting upon the general system, may produce the worst of consequences. A case was recently brought to our notice in which a small epulotic tumor, simple, and, we have no doubt, perfectly manageable at first, was suffered to progress until all the surrounding structures were implicated to such an extent as to forbid any surgical interference in the case. The unfortunate sufferer has since been relieved by death.

Lancaster, Pa.

SUDDEN FORMATION OF CATARACT IN BOTH EYES.

MESSRS. EDITORS:—

In October, 1855, E. Fairweather, a boy aged three and a half years, was brought to me by his father, who informed me that a "film" had grown upon his child's eye during the last three days. On examination, I found the right eye perfect, with a deep clear pupil, but in the left there was a perfectly formed lenticular cataract, with small white spots upon the capsule of the lens, which were rather more opaque than the lens itself. There had been no pain or inflammation in the eyes, and the child seemed in good health; but thinking there might be some gastric irritation, I prescribed some mild cathartic medicines, and requested the parents to bring him again in the following week.

Five days after the first examination, the boy was again brought in, the parents having observed that he had lost all useful vision, and could not find his way about the house. To my great surprise, I found the lens of the right eye had become quite as opaque as the left, in so short a time. I then informed the parents that an operation would be necessary to restore the sight, but advised them to wait till the following spring.

On the 12th of June, 1856, I broke up the lens of the left eye freely, through the schlerotica, with a slightly curved couching-needle, and passed some portions of it over into the anterior chamber. Belladonna was applied, to keep the pupil dilated, and great care taken to prevent inflammation, and, in from four to five weeks the eye was quite cleared up, leaving a deep clear pupil and giving good vision.

In consequence of my own ill health and absence from home, the operation was postponed upon the right eye till the 24th of June, 1858. I then performed the same operation as on the left, dealing freely with the lens and capsule, and passing portions of the lens over into the anterior chamber, and in six weeks it was quite dissolved, leaving a clear deep pupil as in the first operation. The lad can now see well enough to count the number of men in a boat half a mile distant, and, with cataract-glasses, well enough to read small print.

Having spoken to several surgeons in regard to the sudden growth of cataract in this case, they have expressed some doubt, alleging that it must have been congenital; but, on the contrary, the child had brilliant eyes and good sight till three and a half years old, when, in the short time of six or eight days, cataract was perfectly formed in both.

C. K. FISKE

ST. JOHNS, NEW BRUNSWICK, July, 1859.

PROCEEDINGS OF DENTAL SOCIETIES.

PENNSYLVANIA ASSOCIATION OF DENTAL SURGEONS.

REPORTED BY GEO. T. BARKER, D. D. S.

The monthly meeting of the Association was held on the evening of June 21, at 8 o'clock. The President called the meeting to order, and stated that the subject of discussion was the

"CONSTITUTIONAL CAUSES OF CARIES."

The subject was opened by Dr. Garretson, who doubted not that every member would agree with him, that a large proportion of the cases we are called upon to treat, were produced by constitutional causes. It could be distinguished in children, whose teeth would be marked by the impress of abnormal salivary secretions at the time they were presenting. Another proof is, where caries attack a tooth, we find the corresponding one on the other side similarly affected. It is not rare to meet with cases in which the saliva is strongly acid, from the admixture of fluids from the stomach, and should the teeth be defective, he believed that caries would be induced, and rapid disintegration of the teeth would follow.

He believed that the salivary secretions did much to prevent decay, they, by their presence, bathing the teeth and freeing them from decomposing substances, which were there retained. But the suppression of this secretion is often constitutional, and where such is the case we find caries rapidly progressing. In those cases where there seems to be deficiency of the earthy constituents of the teeth, he uses the phosphate of lime; and, when the caries is induced by acids eliminated by the saliva or eructated from the stomach, believes that lime water and antacid tooth-washes are indicated.

Dr. Buckingham would ask whether we understand caries to be a disease, or the result of chemical decomposition? He believed that caries was due to chemical decomposition, the parts being first deprived of vitality. A vital tissue cannot decompose: so long as it retains vitality it is governed by physiological laws, but when it is deprived of its life-force the changes that then take place are governed by *chemical laws*. In the soft parts, when inflammation is induced, it may run into a high grade, and finally end in mortification; in the mortified part all vital action having ceased, it is therefore subjected only to the chemical laws. He believed that an increased circulation might be induced in the tubuli of the dentine, and terminate by depriving that tissue of its vitality, and then the dead dentine would be easily effected by acids. Whilst he agreed with the views of Dr. Garretson, yet thought the fault was that many persons,

and particularly children, had not vital power sufficient to *appropriate* the materials for the development of the different organs. It could be seen in children growing up together, both having the same food, exercise, and care; one would be robust and healthy, with the teeth and frame well developed, while the other would be small and unhealthy, with the frame undeveloped, and teeth defective. These are cases, I believe, where there is not life-force sufficient to appropriate the proper materials to form good teeth: those teeth are readily acted upon by decomposing agents, and rapidly decay. It is also evident that the peculiar structure and form of the teeth are transmitted from the parents to the children; and in many cases it seems to have been designed by nature that these organs should fulfill their functions for a certain time, and then become diseased.

Dr. McQuillen, in reply to a question addressed him by Dr. Garretson, said there could be no doubt that a constant molecular change occurs in dentine, and that the function of nutrition, or the law of composition and decomposition, which governs the animal economy from the earliest period of foetal existence to the cessation of life, prevails in this tissue as in other parts of the body; the rate of disintegration and reparation, modified, of course, by its position in the scale of vitality: that, until quite recently, dental writers, in accounting for the development and progress of dental caries, were divided in their opinions,—a portion believing it due to inflammation, and a much larger number to purely chemical influences. Within the last few years a more satisfactory and philosophical theory had been advanced,—the *chemico-vital*. For instance: in a depraved condition of the system, dentine, failing to be supplied by the blood with the materials that are inservient to its nutrition, a predisposition to diseased action is induced, and the power to resist the action of external (chemical) agents being lessened, caries is developed.

Numerous cases had come under his notice, in which persons who, up to a certain time, had enjoyed the possession of teeth remarkable for their perfect structure and apparent exemption from decay, had, after a certain period, entirely changed their characteristics, becoming soft, and decaying in a rapid and destructive manner. Children, between twelve and sixteen years of age, and females, after gestation, were those most frequently affected.

In accounting for the change in the parturient female, he supposed that the demands of the foetus for the phosphate of lime were so great that the supply was furnished at the expense of the mother; this, combined with vitiated buccal secretions would be sufficient to develop caries. In support of the position that the foetus could deprive the mother of a large proportion of phosphate of lime, that is demanded for the nutrition of her own tissues, he would allude to the fact that *mollities ossium* sometimes

follows immediately after gestation. With regard to the change occurring in children, he had reason to believe that error in diet was the primary cause; by indulgence in certain articles of food, an excess of lactic or other acids is developed in the stomach, and that, whilst a certain portion of acid is required for the purposes of the economy, the pernicious influence of an excess would be twofold: in the first place, by acting upon the calcareous constituents of the food, and so modifying their character, as to render them useless in the nourishment of the dental tissues; secondly, by changing the saliva from an alkaline to an acid fluid. For one of the great laws of the organism is to rid itself of superfluous matters by means of the excretory organs; thus the urinary, biliary, and salivary secretions present an acid or alkaline reaction according as one or the other predominates in the system. In the management of such cases, he had more confidence in a correct dietetic regimen than in the use of medicinal agencies; and, in addition to operations carefully performed,—hoping against hope that they would prove serviceable,—he enjoined abstinence from food calculated to develop acidity, and the selection of articles containing a large proportion of calcareous materials.

With regard to the use of the phosphate and carbonates of lime which of late had been strongly recommended, he thought they might be useful in correcting acidity, but questioned the probability of their being taken up by the lacteals; on the contrary, he believed they passed from the body *per viam naturalis*.

A member having taken exception to the presence of free acids in the system, Dr. McQuillen directed attention to that condition of the system known as the *gouty*, or *uric acid diathesis*. Blood removed from persons laboring under this affection had been analyzed, and *uric acid* detected in it. (Referred to Leibig, Lehmann, Bence Jones, and others in corroboration.) Adding that this affection may be either hereditary or acquired; in the latter case, high living, and, particularly, free indulgence in wine, was a most prolific cause. No one could deny that if wine in a cask were exposed for a sufficient length of time, that it would acidify. If a person, by long-continued and too liberal use of wine, should convert himself into a peregrinating wine-sack, there could be as little doubt that his excretory organs would be compelled to eliminate large quantities of acid.

Dr. J. Foster Flagg followed, and believed that the teeth which decay most rapidly were those already possessed of a superabundance of *inorganic constituents* to such an extent as to have received the common appellation of “chalky.” Furthermore, that the form of this class of teeth (they having the longest cusps and the deepest sulci) was a predisposing cause of decay, when they were kept unduly clean; the decay being directly induced by the vitiated condition of the fluids of the mouth,

would be accelerated just in proportion to the facilities offered for constant action. We know that when kept scrupulously clean, these teeth rapidly decay; and it is only from the fact that an adherent vehicle for the retention of these vitiated secretions is found in food remaining within the crevices and cavities of the teeth, that this uncleanness is promotive of decay. As the best means within our reach of arresting to a certain extent the progress of caries in this *class* of teeth, he advocated the free use of antacid tooth-powder, with the injunction not to rinse the mouth, but to allow the powder to remain as much as possible among the interstices of the teeth; suggesting that *freshly masticated* food even should be considered as a protection against the acids of the mouth, until such time as it became saturated with them.

The discussion was participated in by Drs. Kingsbury, Harris, and others; after which, at a late hour, the meeting adjourned.

At a regular meeting of the Dental Society of the City of Pittsburg, held July 11th, 1859, Drs. Wm. M. Wright, J. Westbay, and R. Vandervort were elected to represent the interests and wishes of this Society in the Convention to be held at the Falls of Niagara, on the first Wednesday of August, 1859, to determine the propriety of forming a National Association of Dentists.

M. DEPUY, *Secretary*.

In a letter received a few days back, Dr. W. M. Wright states that the following dentists of Pittsburg have signed the call for the organization of a National Association: Wm. M. Wright, R. Vandervort, M. Depuy, J. S. King, J. Westbay, and Charles Sill.

CORRESPONDENCE.

The following extracts, from a private letter recently received from a friend, whose grandfather and father have been engaged for a long period in the practice of dentistry in the City of Hamburg, will prove interesting on account of the information it affords of the difficulties that attend one, though "to the manor born," in entering upon practice in Europe; and also from the graphic description of the respect paid to one who has been engaged for half a century in the practice of the profession. The writer, after pursuing his medical studies in the Universities of Heidelberg and Gottengen, and graduating from the latter, came to our country, entered upon the regular course of instruction in Dental Surgery, graduated, and

has returned to his native city with the intention of entering upon practice there.

HAMBURG, 30th of May, 1859.

DEAR DR. :—

Things do not travel as fast in our country as in yours, and you will, therefore, not be astonished if I tell you that I have not yet entered upon the practical duties of my profession. I am not yet a citizen of this State, and before I shall have passed through all the annoying formalities belonging to the acquirement of the citizenship, I am not entitled to settle down. Considering that I expect several things of Messrs. Jones, White & McCurdy, which I hope will arrive without delay—and everything must have its time—I am not yet too late. I arrived in this city on the evening of the 8th of May, after having passed the time, since my arrival in Europe, in that greatest of magnificent cities, Paris. This truly great capital of the French empire has added so many fine and lasting monuments to the beauties it already contained, that it was to me quite new and metamorphosed in many of its formerly little and disgusting quarters.

Though I did not meet with any friends the first week of my arrival, I was very soon found out in my hotel by a friend of my father, in whose very amiable family I passed almost all the rest of my stay in Paris. This gave me occasion to be presented to Velpeau, the head surgeon of the Charité, and recognized to be the first authority in his profession. Velpeau, as he appeared in his clinic, a middle sized man, with white hair and a little red velvet cap on his head, looks rather imperative and dominative. He was still in bad humor, as he had been somewhat imposed on by a quack, of the name of Vries, who is generally called the black doctor. This man, who has made a great deal of money, by saying that he could treat the cancer without the knife, and who did not cure a single individual, had received from Velpeau permission to treat several cancerous women in his hospital. Velpeau, seeing that he was an ignorant impostor, obliged him to quit the hospital before the time promised to make his trials had elapsed. This, of course, was a source of many annoyances for Velpeau, as, in the first instance, the quack had largely increased his reputation by saying that Velpeau had given to his care the patients he could not cure, and that afterwards Velpeau took them from him, because he became jealous of his practice.

I visited Dr. Evans and Dr. Preterre. * * * * * On my first visit, Dr. E. inquired immediately after my grandfather and father, to whom, he told me, he had had letters; but, as he never passed through our city, had not visited them. His office is still on Rue de la Paix, where he occupies the first etage (second story.) At another visit he showed to me an upper set in the vulcanized style, which he has been using several years in many cases. He seems to be perfectly satisfied with it.

I visited some other friends of my father, engaged in the dental profession, and was very cordially received in their families: so much so, that I found myself perfectly at home in Paris. To my great joy I met with six friends—fellow-students of Heidelberg and Gottengen—who arrived the day before I left France.

Dr. Foriac, a retired practitioner, and formerly President of the Dental Society of Paris, informed me that the Society has ceased to exist.

Some friends, who had written to my father, wished to induce me to settle down in Paris; but there are already several hundred practitioners

there, and I am again in the midst of my family and numerous friends, to remain with them probably for ever. * * *

As I have already told you, I arrived in this city on the evening of the 8th of May, I need hardly add that there were rejoicings through the hearts of my family and self, at meeting again in happy days, and in perfect health. There seemed to be no end in greeting and questioning, and it was only after midnight that I retired to my room. And had we not reason to congratulate ourselves for all the happiness we felt, in seeing our grandfather still robust and enjoying good health, celebrating the next day the fiftieth jubilee of his professional career? It is a long period, and gives rise to many reflections to one just beginning; that he had arrived at that period of life, and that he could reflect upon his untiring and successful life in quiet and happiness, and say that he owed it all to himself, is a moment of satisfaction and self reward which is given but to few.

We were told the evening before, the 9th of May, that a deputation of the Medical Board of the city intended to congratulate him at noon on the next day, and the next day was in fact a day of rejoicing and congratulating. For, from morning till evening we had to receive the visitors, who scarcely allowed my grandfather to take a seat for some moments, which, we feared would very much tire and exhaust him.

At noon, the deputation of the Medical Board congratulated and presented, in the name of the University of Tena, a diploma to my grandfather, which makes him a Doctor of Medicine and Surgery. The president of that board made a very appropriate and hearty speech. You may imagine the surprise of my grandfather, as he did not know anything of these proceedings until the very moment of the delivery. This deputation was followed by one of the Assembly of Physicians and Surgeons, another of the Dentists, of numerous Lodges, and of the Assembly of Natural Science. A great number of private friends and acquaintances, as well as numerous letters from different parts of the country, and the sending of flowers and presents, made of this day a day of celebration which will never be forgotten in our family. * * *

Thus finished a day in our family which was ardently began and happily accomplished; and what may have been the internal rejoicing of my grandfather, when he said, I have reached that term which I longed to accomplish? And now, that all has taken again its usual course, and that I have arrived at that period of life when I shall lay the fundamental stone to my practical career, I feel, I confess it to you, a little diffident in my first start on the rough road of life; but having such good examples to guide me, and thinking of Longfellow's words, "go forth to meet the shadowy future, without fear and with a manly heart," I will go forth and do my best. * * *

Yours, very truly,
P. CALAIS.

J. H. McQUILLEN, M. D., D. D. S.

We make the following extract from a letter received from our friend Dr. A. Robertson, of Wheeling, Va., as corroborating the remarks we made in answer to "A Subscriber," on how long should we wait before

placing in the mouth a set of artificial teeth after extracting the natural ones?

J. D. W.

“A Subscriber” would like to see remarks from some of our experienced practitioners. It has been a long time since I have pretended to fix a definite time when any mouth will be ready to receive a *permanent* set of artificial teeth. In some cases where, from disease, as from salivation, neglect, or other causes, the alveoli have been previously absorbed, and the teeth ready to drop out; three or two months may be long enough, but such cases are only the rare exceptions. I *usually* expect my temporary sets to be worn a year, *or more*, before exchanging them for more permanent ones; and how any honest man, or one having any regard for his reputation, who has had but one year’s experience, and in that time has put in but one temporary set, and has observed how far the gums have receded from the borders of his plate in that time, can do otherwise than you recommend, (that is, be guided by the state of the mouth, and not by the lapse of time,) is more than I can understand. So, if my experience of more than twenty years is good for anything, either alone or as accumulative testimony added to yours, he is welcome to it.

Very respectfully, &c. &c.

ABR. ROBERTSON.

EDITORIAL.

It will be seen, by the Publisher’s Notice, that the *Dental News Letter*, with the completion of its twelfth volume, July, 1859, terminated its existence under that name. Although changed in name, it still breathes the same spirit, and is moved by the same life-spring. The humble writer of this pledged himself to the publishers of the late *News Letter* to contribute, at its commencement, his mite by way of contributions to its support, and, with the assistance and advice of its able Editor, Dr. J. R. McCURDY, for a series of years we were enabled to accomplish much more than we could have anticipated, as the many compliments which have been paid us through its columns from time to time will testify.

As time elapsed and it grew into importance, it fell to our own lot to be honored by being called to assist in the editorial department. To this we never would have consented, had we not been sure that we were associating ourselves with one on whom we could at all times rely for friendly and valuable advice; how far our services have been useful, we will leave to the generosity and indulgence of its readers to decide. For ourselves we can say, that however arduous the duties of editor and contributor

have been, they have been most pleasing and profitable. While we have, with regret, to part thus unexpectedly with one of its projectors, it is with the liveliest feelings of pleasure that we shall long remember the very pleasing and profitable circumstances under which we have been so long associated. No one has had a more favorable opportunity than ourselves of knowing how deep an interest my late colleague felt in the success of the late journal, or any other that had for its object the advancement of the cause of dental science, and we cannot terminate our intercourse in that enterprise without feeling a deep interest in his future happiness. The rapid advancement which our growing profession has made, and the frequent interchange of sentiment and experience which its members are anxious of establishing with each other, has seemed to demand a vehicle more frequent for their wants than a quarterly afforded; hence the establishment of a monthly—"THE DENTAL COSMOS." We expected that, with the termination of the *Dental News Letter*, our connection with a journal would have ceased, but we have accepted the Editorship of the Original Communications of "THE DENTAL COSMOS," because we feel a deep interest in the successful publication of a journal in our city, and we pledge ourselves with all our powers, aided by our able associates and energetic and liberal publishers, to leave nothing undone to render "THE DENTAL COSMOS" more useful and successful than any journal that has yet preceded it in our country.

Of our readers we ask indulgence for our short comings, because all we do is done in haste, but in earnest; would that we could do better; and of our contributors—whatever we may do with their communications, we will be governed by a desire to do the best for them and for the good of the profession, and we call upon every earnest inquirer after knowledge to contribute to its support, by *word* and *deed*, to the utmost of his abilities.

J. D. W.

INDIVIDUAL AND ASSOCIATED EFFORT.

Forty years ago, Sydney Smith asked, when reviewing a work that had been written in this country, "in the four quarters of the globe, who reads an American book, or goes to an American play, or looks at an American picture or statue? What does the world yet owe to American *physicians* or *surgeons*? What new substances have their chemists discovered, or what old ones have they analyzed? What new constellations have been discovered by the telescopes of Americans? What have they done in the mathematics? Who drinks out of American glass, or eats from American plates, or wears American coats or gowns, or sleeps in American blankets?"

Penned, as these queries were, in an ungenerous spirit, by one who did not make due allowance for the fact that, in a young country such as ours, seclusion of the highest energies and best intellects from the active world, and their exclusive devotion, in any numbers, to science, literature, and art, is impossible, on account of the demands made by the practical pursuits of life. They have been answered within the brief period that has elapsed since their publication, in a manner alike gratifying to our national pride—the advancement of science, the refinement of art, the cultivation of letters, and the amelioration of human suffering.

American authors, painters, sculptors, physicians, surgeons, astronomers, mathematicians, and manufacturers, have each, in their respective departments, contributed, in such a decided manner, to the knowledge and happiness of the world, that the fruits of their labor have not been confined to the mere limits of our country, but their genial and beneficial influence has been extended to the *four quarters of the globe*.

In this onward movement it is a source of felicitation that the dental profession has taken an active and prominent part. Rousing its latent energies, and developing its resources, it emerged from the Cimmerian darkness that had enveloped it, organized societies, established colleges and magazines, and sent representatives to Europe, that the *Old World* might enjoy the practical advantages of the *New*. So powerful, indeed, have been the combined influences of these elements, that our brethren on the other side of the Atlantic have become aroused to the necessity of similar movements on their part.

Gratifying as these reflections are, the candid, unbiased, and careful observer must admit that, whilst in all that appertains to practical details, whether in the performance of the delicate and complicated operations attendant upon efforts for the preservation of the natural organs, or when these have been lost in the construction of artificial substitutes, the American dentist has displayed a skill and ingenuity that has not been surpassed, if equalled; the profession, as a whole, have not cultivated that intimate acquaintance with the structure and functions of the animal economy, the broad principles of medicine and surgery, and the science of chemistry, that is demanded of those who are engaged in an avocation that claims to be more than a mere trade. The most superficial examination of the proceedings of our association, and many communications in our journals, will convince one of the correctness of this conclusion.

As a thorough knowledge of the *science* is indispensable to a proper appreciation of the *art*, there can be no just reason why the one should be cultivated at the expense of the other. In looking round for an explanation of this disparity, it can only be accounted for in the defective training of the student and the mental indolence of the subsequent practitioner. Engaged, as a large majority of the profession have been, in other

pursuits prior to entering upon the study of dentistry; how few have subjected themselves to the mental discipline that is demanded to overcome the disadvantages of a defective primary education? how few have passed *years* in the office of competent private preceptors, and in attendance, session after session, at Medical or Dental Colleges? On the contrary, have not, by far, the largest number fled to it, as a calling easy of acquisition, and, after passing a few weeks, or months at best, in the office of one as incapable of teaching the science, as he was of practicing the art, with no other preparation, entered upon the practice of the profession? Many, thus duped in the beginning, have, by extraordinary exertions and studious application, mastered every obstacle, and become bright and leading lights in our ranks. They, however, invariably condemn, in unmeasured language, the deceptions that were practiced upon them by *psuedo* preceptors, and freely confess that they regard their early efforts as a standing reproach to them.

When the conviction of existing defects is forced upon the mind, the question at once naturally arises—what is to be done in effecting the desired reform? A rigid appropriation of certain hours each day out of the twenty-four, to constant mental culture, on the part of individual members of the profession, should be the first, as it would prove the most powerful element in the reformatory movement demanded, creating that degree of scholarship, both general and professional, and that expansion of views, combined with concentration of thought and effort which is so much to be desired in every practitioner, and particularly those who contribute to the literature of the profession. The establishment of local societies in every city and town of any size in the Union, by affording, through monthly meetings, frequent opportunities for an interchange of views, would exert a salutary and stimulating influence upon the members, by developing and increasing the desire for self-improvement. The *regular* appointment of members to prepare essays to be read at each of the meetings, in addition to cultivating the habit of writing, would keep alive an interest in the proceedings, by affording subjects for discussion. In the selection of topics, care, however, should be exercised not to be constantly recurring to the same themes until they become hackneyed and tiresome. An association, in which such a course prevails, can only be compared to a man confined to a tread-mill, who, though constantly in motion, never advances. Whilst the practical should ever be a prominent and constant topic of consideration, purely scientific and theoretical subjects should also obtain careful investigation.

The course of study that the dental *student* should be subject to, is a matter of vital interest to such organizations. Though thoroughly convinced of the advantages of a collegiate education, superadded to private preceptorship, one must admit, that if the student acquires sufficient

knowledge before entering upon practice, it matters little in a general way how it is obtained. And whether *alone*, or associated with others, whoever devotes himself earnestly and sincerely to the education of those about entering the profession, deserves commendation and encouragement. But practitioners (however well-informed they may be) who can give students no other aid than the use of a few obsolete text books, with the privilege of working in the laboratory for a few weeks or months, and from the engrossing character of their practice, cannot afford frequent opportunities for recitations and examinations in the course of studies pursued, and give regular demonstrations in Operative and Mechanical Dentistry, are highly culpable, and do much towards lowering the professional standard, by increasing the number of imperfectly educated practitioners that are annually added to our ranks.

Each association, therefore, should make it obligatory upon its members not to take students for less than two years; and that, during the period of tuition, he should afford and insist upon the student's taking advantage of every opportunity for study; and, by regular examinations ascertain the progress that has been made, and correct the erroneous views that may have been formed. To these, weekly, if not daily, demonstrations in Operative and Mechanical Dentistry should be added.

One of the most important duties of these societies remains to be considered: the election of delegates to a National Association upon a representative basis. For, scattered as our profession is, over a large extent of country, annual meetings of practitioners from different sections of the Union become necessary to ascertain the general state of the profession, the advance that has been made during the year, and to afford opportunities for consultation over its affairs, and the adoption of measures that are demanded to promote its best interests. As the object of such an organization should be neither selfish nor mercenary; but the elevation of the character and dignity of the profession, and the advancement of dental science, care should be exercised in selecting those who will be able to reflect credit upon the associations they represent, and by their abilities and attainments add to the interest and importance of the proceedings. And who can be more thoroughly alive to the *state*, or more deeply impressed with the *wants* of the profession, than those who, seeking mutual improvement and the cultivation of pleasant relations, are in constant association with their fellows at home? He who objects to the establishment of such an organization, on the ground that it is anti-democratic and exclusive, fails to remember that where a large number are interested, and it is impossible for the entire body to meet, that a representative basis is absolutely demanded, and that such representation is *eminently democratic*, and only exclusive so far as the wilfully ignorant are concerned.

REVIEW OF DENTAL LITERATURE AND ART.

BY J. H. M'QUILLEN, D. D. S.

NEW YORK DENTAL JOURNAL—JULY.

THE TWO CONVENTIONS.—This number contains the proceedings of a recent meeting of dentists, held in the City of New York, at which, after an interchange of views, the following resolutions were adopted, viz:—

“Whereas, There is a disposition manifested on the part of some members of our profession to change the American Dental Convention from its present form to that of a representative body—

“Therefore, *Resolved*, That, in the opinion of this meeting, there is no evidence that a necessity exists at this time for any such change, or that any National Convention or Association, composed of delegates embracing a fractional part of our profession, could possibly subserve the purposes and objects aimed at by the founders of the American Dental Convention.

“*Resolved*, That this meeting has entire confidence in the principles upon which the American Dental Convention was organized; that we feel certain that the benefits anticipated from its deliberations are being realized and appreciated by the profession in general, for whose improvement it was instituted, and upon whose efforts will depend its ultimate usefulness and perpetuity.

“*Resolved*, That it is the duty of every dentist who desires the advancement of the profession, to attend the Convention at Niagara Falls, and use his influence against any action tending to dissolve the American Convention, or to create any delegated organization.”

That a portion of the profession were inclined to believe that an alteration in the form of the present convention would be attended by increased usefulness in its sphere of action, is undeniable; but the impracticability of such a change, on further reflection, became apparent, and it is extremely doubtful whether any one entertains such an idea at the present time. On the contrary, believing it would only result in a lengthy discussion, and interfere with the regular order of business, there is a decided indisposition to agitate the subject in that body. With these convictions, a memorial advocating the formation of a separate and distinct organization upon a representative basis, was drawn up, and to prevent the possibility of clashing with the existing convention, a later day was named for the meeting of the delegates. This memorial was signed by a number of respectable practitioners in several States of the Union, and, without doubt, would have been by many more in other parts of the country, if it had been known who to address on the subject. Responding promptly to the suggestion contained in the memorial, nearly, if not all the local organizations have elected delegates to represent their interests in the

proposed convention. The instructions given by each association to its representatives, so far as we are informed, is merely to co-operate with the delegates from other societies in the formation of an association upon a representative basis.

After attentively reading the resolutions copied above, we see nothing in their *tone* to offer exceptions to, but the concluding part of the last resolution; that a decided opposition should be offered to an attempt at Niagara "*to create any delegated organization.*" Had the gentlemen who supported this clause reflected that by such action they might possibly encroach upon the *rights* of others, we feel assured that a sense of justice would have prevented them from thoroughly endorsing it. If they or others are satisfied that the existing convention answers all the demands of the age, and prefer it to any other form of association, no one can question their right to take an active and decided part in its deliberations, and the advancement of its interests; and, on the other hand, if a number of local organizations, (some of which have been in existence for several years,) responding to the express wish of many practitioners scattered over a large extent of country, should send delegates to a separate convention, not for the purpose of acting in opposition to an existing association, but to organize one that, according to *their convictions*, is demanded to meet the present and future wants of the profession, every one must admit that their *right* to do so is equally undeniable.

If, as has been asserted, the delegates will embrace but a fractional part of our profession, is not the same equally true of the existing convention? For, granting that there are 7,000 practitioners in the country, its largest meeting has never exceeded one-thirty-fifth of that number, though the session was held in the most populous city in the Union.

At the first meeting of the delegates in the proposed convention, little more than the adoption of preliminary arrangements can be expected; in effecting this, we are unable to conceive what possible injury can be inflicted on sections of the country that may be unrepresented on that occasion. There certainly is no disposition on the part of those engaged in the movement to do so; for, whilst aiming to establish the highest possible standard of qualification, they desire also to cultivate the most friendly and amicable relations with their fellow practitioners in every section of the country. Having derived many benefits from local associations themselves, they are desirous that others shall enjoy the same advantages; and, believing that the establishment of the proposed association will be the most powerful means of accomplishing that result, they trust that whatever opposition may be brought to bear against the movement, will be done in a generous and friendly spirit.

AMERICAN DENTAL REVIEW—MAY.

GALVANISM.—In this number we find that the report of the Committee appointed by the Pennsylvania Association of Surgeon Dentists, to test the use of galvanism in the extraction of teeth, has been confirmed by the report of a similar committee appointed by the St. Louis Dental Society. The pith of their report will be found in the accompanying paragraph.

“The high claims set up for it by those interested in its introduction, had led them to anticipate results which have not been realized in an experience of several months. In some cases considerable alleviation of the usual pain of extraction has attended its use, and in a *few* cases the operation has been said to be entirely painless. In a large majority of cases, however, the anesthetic effect has been found to be very slight, while occasionally the pain of extraction has been absolutely increased. There is, moreover, no means of determining beforehand what will be the effect produced in any particular case.”

The committee consisted of Drs. C. W. Spalding, H. E. Peebles, Isaiah Forbes, H. J. McKellops, and Henry Barron.

DENTAL REVIEW OF LONDON—JUNE.

Those who feel a deep interest in the advancement of Dental Science, will be gratified to learn that our English brethren, after an ably contested struggle, have at last succeeded in establishing a *Dental College in London*. By the advertisement of the institution, we find that six professors constitute the Faculty. Dr. W. B. Richardson, who delivered a valuable course of lectures, (extracts from which have been published in some of our magazines,) during the past winter, before the College of Dentists, occupies a chair in the institution. The following, from an able editorial, gives an encouraging account of the pleasant state of feeling between the hitherto hostile parties:—

“*Future Prospects.*—To those who have taken an interest in the progress of Dental Politics, the prospects of the profession at this moment must afford supreme satisfaction. The year 1859 has brought with it success little anticipated, and hopes little hoped for. Animosities have been signally quelled; those who differ, agree to differ in friendship; the tone of our literature has undergone improvement; personalities are well nigh extinguished; and from the peace which is thus being established, progress, liberal, refined, and steady, is the result.

“It must have been felt during the late disputes which have marked the organization of our chaotic body, that the exertions made to secure such organization were rather for the future than for the passing time. We know that this has been felt, and have heard many express the belief that the anxieties and labors to which they were being subjected, were but the bases of an after-structure, which, in their own time, would not appear before them. Without giving way to hopes over-sanguine, we feel that the dark side of the picture is not in reality so long to be dreaded. To us it seems that the realizations of a bright and useful future are at hand, and that those

young men who are now actually before us in our work-rooms, are the coming representatives of a profession such as we have not yet seen in any country where dentistry is practiced; a profession educated, liberal, and fraternal. The event which promises most towards this consummation is given out in the establishment of the School of Dental Science, now fully organized and announced. Nothing could be more opportune, nothing more beneficial than this organization. When, in our last, we briefly commented on the formation of this school, we were not prepared for the fulfillment of the engagement in that completeness in which we now accept it. The advantages of a complete school, with all the accessories required, are now placed within the reach of our students. The American Colleges, with their years of growth, are not more comprehensive." * * *

"Meanwhile, it is an encouraging fact, that the public are not uninterested spectators of our progress, and that public opinion, which, in this country, always goes in favor of independence, favors the earnest exertions now being made. That which has given the American dentist his standing, has been public opinion. Rightly or wrongly, the public has believed that the American dentist, having had the advantages of a systematic education in his science and art, is better qualified than he who has learned by stray lessons and intuitive skill; and the public faith thus raised has given to American dentistry an *éclat* attended with many substantial advantages. There can be no doubt that the common belief thus expressed is not without a measure of common sense. There is no denying the fact that the man who is educated in general things, and is equally educated in any particular branch with one who is *only* educated in the same particular branch, stands at all times, and in all places, the best chance of success. To this fact the dentists of England are now fully alive, they are sensible of the defects of their past educational system, and are prepared to second, by their advice to their pupils, any new system that shall lead to effective reforms in the future. At last the facilities they themselves would have prized so much, are opened to their followers, and if we do not mistake our brethren altogether, the projectors of the School of Dental Science will be met by the profession throughout the length and breadth of the land, in a spirit of honest, hearty, and effective co-operation."

Nothing that we have read within the past year, has afforded us more satisfaction than the series of lectures delivered by Dr. Richardson, and published in the monthly number of the *London Dental Review*. Clothed, as they are, in language at once polished and forcible, his familiar acquaintance with the subject, his logical mind, and elegant style, make them alike attractive and instructive. They should be read by every practitioner in our country. We extract the following, trusting that it may be the means of correcting erroneous views entertained by some on the formation of *Pus*:—

"There are few questions in pathology more involved in obscurity than certain ones relating to that pathological condition, marked by the development in the body of a specific fluid known as pus, and designated by the medical world as purulent disease. At the same time, there is no condition more commonly evident in practice, and concerning which more has been written. Under so many circumstances is the formation of pus a

leading process, that the mind of the practitioner is led almost to look upon such formation as a normal occurrence, incident simply to antecedent mischief.

"A wound is inflicted into soft structure, the wound bleeds for a time, the bleeding stops, but the edges of the wound not brought together, and not healing by what is called the first intention, there is soon produced in the open wound a free secretion, very simple in composition, resembling ordinary mucus in its general characters, and serving a protective purpose; shielding, in fact, the open wound from air, and, by such conservation, arresting that ultimate resolution in death known as the putrefactive change. Or a foreign body is lodged in a deep-seated part, a disintegration of tissue is the result, a cavity forms, and on the surface of that cavity there is set up an analogous change; a simple fluid is produced, and lines the inner wall of the cavity. A short time elapses, and in either case this simple fluid is transformed into purulent secretion—into pus.

"The nature of this transformation is the point most obscure. Like the first formed and simple fluid, the new product can have but one source; it must be derived from blood; the vessels supplying the locality in which the pus is presented must needs yield the material, for were this not the fact, the formation could not be continuous. The secretion (for, for the moment, we may call pus a secretion) must be eliminated in the capillary system of vessels. A section of capillary surface has taken on glandular function, and a secreted fluid is the consequence.

"The analogy which exists between the purulent secretion and blood itself, further establishes the source of the secretion. The pus, like blood, contains albumen, contains a body having some resemblances to fibrine, contains water, contains corpuscles resembling intimately the white blood cell; it contains fat, contains salts common to blood, as carbonates, phosphates, and chlorides, especially chloride of sodium; contains sometimes iron, and, to complete the parity, possesses in the normal state an alkaline reaction. What definition shall we give to a fluid so singularly constituted? Let us venture on a bold description; let us express in a sentence a whole book in disease; let us call pus, *modified blood*, and purulent exudation modified *hemorrhage*.

"We must not, however, in this generalizing spirit, be led to the opinion that pus is exuded from blood as pus. We protect ourselves from this error in again representing the pus-secreting surface as a glandular surface; and in stating that the blood, leaving its channels as blood, is transformed into the purulent fluid at the suppurating part.

"At the same time we must not be led into the error of presuming that the formation of pus is an act purely local, and that blood, out of which pus is produced, is normal in all its characters.

"These views would, either one or other, be equally extreme; nor is it easy, even admitting this, to indicate the precise relationship which obtains between disordered conditions of blood and affections marked by purulent formations. It is, perhaps, the nearest approach to the truth that can be made in the present state of our knowledge to say—

"That there are conditions of blood in which, irrespective of local injury or disease, the tendency to purulent transformation is broadly marked.

"That in normal states of blood there are local changes which are capable, by an effect exercised on the blood supplied simply to the local part itself, of exciting a purulent secretion in such part, the compounds of which secretion are derived from blood.

"That there are certain states of body in which there is general disposition of blood to purulent secretion, and, at the same time in the body certain local points in which the formation of purulent secretion is largely favored; or, to put the whole question into one proposition, that pus cannot be produced without blood as the supplying food, and organized structure as the transforming medium.

"An illustration of the first of these conditions is given in the instance of what is called feruncular epidemic, *i. e.* where a disposition to the formation of pus, in form of abscess or boil, extends over a whole country. Here the general demonstration of the fact, and the variation of place in the bodies of affected persons, proves the mode of production to be general, and the local affection to be mainly accidental.

"An illustration of the second of the conditions named, is supplied in the instance of simple suppuration of a wound in a healthy person.

"An illustration of the third variety is offered in cases where, in unhealthy states of body, the suppurative tendency is developed in the immediate vicinity of a portion of diseased structure; as when, during depraved health, abscess, and ulcerative suppuration occur around teeth which are necrosed or carious.

"Now, that I have enumerated and illustrated these three relationships between the blood, and the secretion produced out of it called pus, I have said all, pretty well, that is really known. I could certainly lead you into very refined pathological argument on these relationships; but then I should be leading you from the practical teachings of these lectures for no more desirable a purpose than display of erudition, and this, too, on topics which could not, by all the erudition in the world, be fully explained at the present time. I shall, therefore, leave the points I have laid down as a curt summary of what is known, adding only one more observation bearing on what has preceded.

"While we cannot trace out the nature of that condition of the blood which gives rise to purulent formations, we are informed, by observation, of the external conditions which foster it. We have learned that the pus-producing disposition is an indication of deterioration of blood. We see that when the system is enfeebled, whether by diathesis hereditarily supplied, as by the strumous diathesis—whether by epidemic influences—or whether by deprivation of nitrogenous food or the inhalation of bad air that under these circumstances the tendency to purulent deposit in local structures is marked, and that, in extreme instances of the kind named, the act of suppuration may take its absolute origin from blood thus depraved.

"Hence we have reduced almost to a principle in medicine, the saying that suppurative tendency is a sign of an impaired or vitiated nutrition. Hence, also, we reason in speculative argument that pus is blood transformed into a lower form of organization, and we adduce in evidence of this view, that the purulent fluid is incapable of organic construction, and that animals in which the respiration, the circulation, and the animal temperature are more than ordinarily active, the formation of pus, even in an open wound, is an occurrence almost unknown."

DENTAL REGISTER—JUNE.

TREATMENT OF PERIOSTITIS AND ALVEOLAR ABSCESS.—Dr. Collins suggests, when suppuration is established, the propriety of passing a

lancet through the gum down to the bone, and then drilling the alveolus opposite the apex of the fang, so as to facilitate the escape of pus. He says:—

“First, I ascertain the location of the apex of the root affected, which may be pretty accurately done by pressure over the gum with the point of the finger. If there be the least tumefaction of the soft tissues external to the alveolus, it is thus readily detected. Should there be no external enlargement, then we have to rely upon the sensibilities of the patient, who will signify to us when we touch the most sensitive point, which is always opposite the seat of the difficulty, or apex of the fang affected. Having obtained this information, the lancet is thrust in at this point, cutting to the bone, and drawing it toward the crown of the tooth, making an incision about a half an inch in length; then, with a blunt, but sharp pointed drill, an opening is formed through to the point of the root, which, in some cases, is very superficially situated.”

In the management of periostitis during the first and second stages, with the desire of promoting *resolution*, in addition to the removal of exciting causes that may be present, the application of leeches, and the administration of a mild cathartic when demanded; remembering that one of the first indications in the treatment of inflammation is *perfect rest*, and that the continued occlusion of the upper and lower teeth not only prevents the affected tooth from enjoying that desirable condition, but also increases the difficulty. We are in the habit of placing a cap of gold or silver on the crown of a molar or bicuspid on the opposite side of the mouth from the troublesome organ. This, of course, protects the tooth from the rude shocks incident to mastication, or the involuntary closure of the jaws. As it is to be worn but a short time, a silver band adjusted so as to surround the bulbous portion of the crown of the tooth employed, with a cross piece united by solder, and resting on the grinding surface when in *situ*, will be found to answer every purpose. To make a neat operation it will be necessary, of course, to take an impression of the tooth, and adjust the fixture on the plaster model. A friend recently advised the use of gutta percha in the place of metal. It is possible that it may answer.

If, in spite of antiphlogistic remedies, true inflammation is established, *suppuration* is inevitable; and, under such circumstances the suggestion of Dr. Collins is a valuable one, and calculated to relieve the patient frequently from days of suffering. It is upon the same principle that the surgeon trephines a long bone in a case of internal abscess.

DENTAL REGISTER—JULY.

The following, taken from this excellent magazine, must arrest the attention of every reader on account of the views advanced, and mode of practice advocated. One (with due respect to Dr. Watt) that will not be

likely to meet with hearty approval or speedy adoption on the part of many operators:—

“Thoughts on Fang Filling, by Geo. Watt.—If a tooth be filled over a dead nerve or pulp, of course we expect that difficulty will result from the operation. The putrefactive process will continue with a tendency to extension, and the gaseous products resulting from the decomposition of the dead pulp, will cause sufficient pressure to induce pain and irritation. Increased vitality in the periosteum is manifested—inflammation is established, which, in such cases, usually terminates in suppuration, an abscess being the final result. It is evident that the inflammation of the periosteum is that which must be guarded against; and what is the most effectual method of preventing this, is the question before us.

“As the decomposing matter in the canal is the usual exciting cause, we need be at no loss as to where we are to begin. The dead pulp should be removed—the canal should be freed from all dead organic matter, whether it be pulp, membrane, mucus, or particles of food. It may be suggested that this is impracticable, and in some cases it is; but it can be done as well if we don't fill the canal with gold as if we do. But we will take it for granted that, after we have done our best, some dead matter still remains in the canal, and will, in view of this, detail our treatment.

“We cleanse out the canal as well as practicable, and then arrest the putrefactive process, and fill the cavity of decay, leaving the canal unfilled. The putrefaction may be arrested by several methods. Any agent which will form, with the dead matter, a permanent and insoluble compound, will answer the purpose, provided it exerts no injurious influence on the tooth. If we had to rely on but one agent, we would prefer creosote. It has all the chemical properties which are required. Tannin answers the same purpose, but accomplishes the end more slowly. Chloroform will answer, but is so volatile that it soon passes away, thus rendering frequent applications necessary. Chloride of zinc and nitrate of silver may be used; but the compounds they form with albuminous matter are less permanent than those formed by creosote or tannin.

“Having cleansed out the canal, then, we insert a pledget of cotton, moistened with creosote, and let it remain a day or two, with the cavity of decay merely closed with dry cotton. We then renew the application, and confine the creosote in the canal, by filling the cavity with wax, gutta-percha, or something similar. The object of this is to retain the vapor of the creosote in the tooth, that it may permeate all parts of the canal. After a day or two we remove the applications, wash out the cavity with water, and afterwards with chloroform, dry it, and fill as above stated.

“As there is nothing left in the canal that can putrefy, no danger need be apprehended from this source. And, as to the foramen in the end of the fang, nature closes it up better than can be done with gold.

“When the canal is filled throughout its entire length with gold, the fang (and, of course, the periosteum) is subject to sudden changes of temperature, on account of the conducting power of the gold; and this we believe to be a fruitful source of dental periostitis. In the method we adopt, this is obviated.

“Since adopting this course, our success is much better than when we filled the fangs. We frequently tested, both methods with the same care, in the mouths of the same patients, and the result is as stated above. We might report a number of cases, but, as we now adopt this method ex-

clusively, they are so numerous, that the few we could find room for would seem insignificant in comparison with the whole number."

The citation of cases given, is condensed as follows, on account of limited space:—4 superior central incisors, 1 superior lateral incisor, 2 superior canines, 7 superior first bicuspid, 1 superior wisdom tooth, 1 inferior second molar. The length of time that the practice has been pursued by Dr. W. is not given, but the earliest case reported is dated October 16, 1859.

In the management of teeth in which the dental pulp is exposed, it is not only desirable to prevent the establishment of alveolar abscess, but also to retain, as near as possible, *the normal color of the tooth*. According to our observation, the mere removal of the pulp, though perfectly accomplished, is not sufficient to secure such results.

Whilst candidly confessing that invariable success has not attended our efforts, an experience extending over twelve years, during which we have treated several hundred cases of denuded dental pulps, extirpating the pulp, and carefully filling the pulp cavity, enables us to say that 95 cases in a 100 *at least* have been successful. At the same time, we have enjoyed the opportunity of examining many cases treated by fellow-practitioners in a similar manner with equal success. During this period, numerous cases have also come under our notice, in which, according to the statements of patients, the plan proposed by Dr. W. had been pursued. In all of these, *discoloration*, and in the majority, alveolar abscess had supervened.

To prevent these sequences, we believe it is absolutely necessary, after the removal of the pulp, to have the fangs properly filled with gold foil. If this is not done, and only the cavity of decay plugged, the pulp cavity (though perfectly dry before the operation was performed) will soon be filled with serum through the foramen at the extremity of the fang, the closing of which, by nature, we are disposed to question. Even admitting this to occur, the anastomosis between many of the *dentinal tubuli* in the root, and the *lacunæ* and *canaliculi* of the cementum would be sufficient, by capillary attraction, to facilitate the entrance of the *lignor sanguinis* into the cavity.

As an evidence that this is not a mere hypothetical argument, on placing a very thin and *dry* section of a root (with the dentine and cementum perfect) under the microscope, the anastomosis between the tubuli and the lacunæ and canaliculi, will not only be observable, but also the passage of fluids along the courses of the dentinal tubes, when a drop of liquid is brought in contact with the section. Again,—as the *experimentum crucis*,—after thoroughly drying a perfectly sound tooth (in which the foramina at the extremity of the fangs are not visible to the naked eye) and weighing

it, and then immersing it in water or other liquids for a short period, on removing it and weighing again, a perceptible increase will be discovered.

The serum, then, having entered the pulp cavity, it remains there, and soon runs into decomposition. As a consequence of this, even the limited amount of coloring matter present, is sufficient to effect the discoloration of the tooth; and sooner or later, in the majority of cases, the vitiated fluid, acting as a foreign substance, will excite periostitis, terminating in suppuration and a fistulous opening through the gum.

The fallacy of the objection, that filling the pulp cavity with gold would be a fruitful cause of periostitis, by subjecting the periosteum to variations of temperature, through the conducting quality of the metal, will be readily perceived by remembering, that the *non-conducting* properties of the dentine and cementum would be sufficient to protect it from such deplorable influences.

In an article on the *Chloride of Zinc*, Dr. J. Taft states that, adopting a suggestion by J. C. Wadsworth, published in the *London Lancet*, he has diluted the chloride with oxyd of zinc, and employed it in cases of sensitive dentine. Less pain attended the application than when the chloride was used, but it is slower in its operation. He says:—

“It is prepared by mixing and triturating equal proportions of the dry chloride and the oxyd of zinc.

“The mixture should be preserved in a wide-mouthed bottle, having an accurately-fitting stopper; it is said a chemical combination occurs between the chloride and oxyd, but, so far as can be decided, no great loss of activity will result.’ It is difficult to keep the pure chloride from deliquescence. When exposed to the air, it contracts water very rapidly, and by this means, parts with much of its chlorine, and so loses its efficient principle.

“When pulverized with the oxyd, however, this difficulty is obviated, for the mixture remains a perfectly dry powder.

“The pure crystal may be kept perfectly free from change in chloroform.”

The following extracts, from a communication by Dr. Hunter, embodies forcible objections to the plan of “uniting teeth to plate by means of AMALGAM”:—

“The process is simply this: Having struck up your plates, ground, arranged, and articulated your teeth in the usual way, flatten and bend the pins, and invest the outside of teeth and plate in a mixture of plaster and sand, or asbestos, to retain them in position; then prepare your amalgam of gold or silver (as the case may be) with mercury, (either filings or precipitates may be used,) triturate well, and press out as dry as you can with heavy pliers the free mercury; then, with a blunt instrument, pack the amalgam over the teeth down to the plate, to the fullness desired, filling every crevice under the teeth, etc.; then invest the inside of teeth and

plate (over the amalgam) with plaster and sand, or asbestos, and cut from the outside whatever is necessary to expose the surface to be occupied by the rim; pack on the amalgam as before, and cover with the plaster and sand; then cut two holes, one at each extremity of the jaw, through the investient down to the amalgam, to allow the mercury to escape; then place in the oven of a stove or in any position where a heat of from 680 to 700 degrees can be applied, for four or five hours, or sufficient time to evaporate all the mercury; after the mercury is all evaporated, renew the investients, and if additional strength is required, cover the surface with a solution of borax, and flow solder over it, so that it will pass through the pores or cells down to the plate; then burnish and polish.

"It is said that this work is got up 'without heat or any soldering whatever.' Now, it is apparent that it can not be got up without *heat*. It would be well to examine the *specimens* exhibited, to see if the teeth are not first *backed* and *soldered* on in the usual way. I challenge the authors of this new humbug to produce a piece of work suitable for the mouth, with no other than amalgam union, which I can not break with my thumbs and fingers. Any work which can be so broken, is not sufficiently strong for the mouth, except in *very* favorable cases.

"There are a great many reasons why this work is objectionable. I will mention only a few:—

"1. It is porous, admitting the fluids of the mouth to be absorbed and lodged in the cells vacated by the mercury, from which it cannot be removed by any ordinary cleaning; it must, therefore, remain, and become putrid and offensive, presenting a beautiful appearance of cleanliness, but in reality, filthy beyond description.

"2. Sufficient strength cannot be obtained, except by either first backing and soldering in the usual way, or else afterwards flowing solder through the cells in the amalgam.

"3. The ease, facility, and economy with which work can be made, possessing the merits claimed for this, without its faults."

AMERICAN JOURNAL OF DENTAL SCIENCE—JULY.

The ably written article below, from the pen of Prof. Johnston, of the Baltimore College of Dental Surgery, is on a highly interesting subject, but one, we regret to say, that has received little, if any, attention from the dental profession. How few in our country, for instance, are familiar with the labors of Owen in this field; and yet they contain a store-house of knowledge, which, one would think, must prove eminently attractive to those whose energies are devoted to preserving the dental organs of the *genus homo*. Persons who are not inclined to cultivate an acquaintance with science, on account of the pleasure such studies afford, and are disposed to taboo everything that does not bear upon its face, in the most striking manner,—a practical application,—may be gratified to find that knowledge, such as this, is frequently demanded to solve questions of the most practical character. As a case in point, Dr. Carpenter, in his work on the microscope, narrates an instance where large pecuniary interests were decided mainly through the microscopical examination of

fragments of teeth. It was important, in this case, to decide whether a stratum of red sandstone that is present in a rocky formation, extending through a certain portion of Russia, was *new* or *old*; if the first, coal might be anticipated, but not under the second. It was at first supposed that fragments of teeth discovered in the stratum belonged to Saurian reptiles, which, if correct, would have been conclusive proof that it was *new*; but a thorough examination demonstrated conclusively that they belonged to a genus of fishes (*Dendronus*), and the stratum, of course, *old red sandstone*:—

“NOTE UPON ODONTOLOGY. By CHRISTOPHER JOHNSTON, M. D.—Whoever takes the trouble to compare an ancient with a recent treatise upon geology, finds himself much perplexed to reconcile the differing nomenclature; and it is not until he has fully comprehended the broad and certain basis of modern geology, and realized the vast, important, nay indispensable aid which paleontology affords in the identification, the separation, and the grouping together of, perhaps, every particular stratum composing the earth's crust, that he becomes aware in how grand a manner a great subject is treated by modern scientists. In former times, there prevailed, in every department of learning, systems, theories, and classifications which waxed and waned, and were supplanted by other speculative substitutes for truth. In medicine, for example, the tenets of Galen ruled physicians for centuries, and were maintained in the schools, even when in opposition to observed phenomena of nature. It was enough to affirm ‘*Dixit Galenus*’ to overwhelm the laborious and patient investigator, who must, henceforth, content himself with viewing everything in the glimmer of artificial light. In geology, there resulted from a comparison of human works with those of the Divine Artificer, certain assumptions which presently came to be regarded as tests of the purity of geologic doctrine. Without taking into consideration the changes inevitable in rocks or groups of rocks, an immutable basis of primary strata was established, and on these the aqueous and volcanic rocks were set as sequence in fact and in point of time.

“This theory, now nearly obsolete, gave way before the power of a higher reason, which dawned about a century ago, when Lehman, dismissing the idea of foundation and superstructure, announced a ‘bold generalization,’ which referred certain rocks to the period preceding the existence of created beings, and others to those epochs contemporaneous with, and following their appearance upon the earth.

“‘In his primitive class, he said, such as granite and gneiss, there are *no organic remains*, nor any signs of materials derived from the ruin of pre-existing rocks. Their origin, therefore, may have been purely chemical, antecedent to the creation of living beings, and probably, coeval with the birth of the world itself. The secondary formations, on the contrary, which often contain sand, pebbles, and *organic remains*, must have been mechanical deposits, produced after the planet had become the habitation of plants and animals.’* ”

“The investigation of facts has measurably replaced the study of theories, and the geological problem of now-a-days involves three questions,

* Lyell, Elements of Geology.

namely, *superposition*, *mineral composition*, and *organic remains*, being an addition of two elements to the single proposition of ancient writers upon the formation and precedence of the earth's strata. Therefore, every work upon geology must embrace these considerations, at the least; and while the field of inquiry is greatly extended, the varied sources of information render knowledge more certain, more precise, more massive.

"Paleontology, or the science which treats of fossil remains; both animal and vegetable, is not to be understood as simply determining the structure and probable form and appearance of things which once had life. It goes further than this: the characters that derive from it become associated with the age of a formation, and constitute a criterion of the highest importance in the comparison of contemporaneous strata, and the distinction of strata, the dates of origin of which are separated by an interval of lesser or greater extent. The study of paleontology, consequently, necessitates, and almost presupposes an acquaintance with geology; for, however interesting the fact that such an animal or such a plant was invested with a particular form, agreeable or hideous, it is almost valueless in science, unless the surroundings are also known, such as the circumstances under which it existed, as the climate, the part of the globe, the habits, whether of mountain or valley, of lake, river or sea, and what is equally consequential, the *age* of the formation upon which it appeared, flourished, and finally became entombed.

"It oftentimes happens that the conditions under which an animal has been buried in soil, were unfavorable for the preservation of even those parts of the body which usually resist decay: so that it behooves the paleontologist to familiarize himself with the characters of minutest recognizable portions that have escaped decomposition. But it is a convertible proposition that, to know what is new, one must know what is old—therefore, to know whether an organism belonged to a pre-Adamic period, an acquaintance with the natural history of the human period is indispensable; and not only that, without a complete knowledge of the compared anatomy of existing genera and species, it would be impossible to refer fragmentary integrals of a lost being to their true position in the economy, as well as to assign the creature a proper place in the animated scale. Suppose, for instance, that a broken bone be disinterred, or lay exposed to the light by the falling in of the earth of a river's bank, the first question that arises is, to what animal did that bone belong? The comparative anatomist, knowing what it is, recognizes the fragment as a portion of the skeleton of a horse. But a greater difficulty now arises; was the living possessor of that bone a representative of an ancient type, or did he, as a member of a recent species, roam the plains from which civilization has driven his wild fellows, or on which it has yoked them to the plow? Comparative anatomy, paleontology and geology, must tell in what age, and upon what stratum of the earth's crust he stamped the hoof.

"What we here suppose for illustration, did actually occur. In 1855, Prof. F. S. Holmes, of Charleston, S. C., collected on Ashley river, from *post-pliocene* beds, (the first removed in antiquity from the new estor *recent* strata,) a great number of fossil bones. These were recognized as remains of the horse, hog, sheep, dog, and ox; bison, tapir, peccary, beaver, muskrat, and elk; mastodon, megatherium, megalonyx, glyptodon, mylodon, and hipparion. In such company, could the horse be claimed as recent? or had horse, ox, and sheep become accidental occupants of the same beds with true post-pliocene and eocene fossils? Now there occurred, scattered

among these bones, *teeth* of all, or nearly all the animals named. These organs, the hardest and most enduring parts of the animal, are not unfrequently the sole remaining traces of creatures which the post has swallowed up; and their distinctive number, form, structure, mode of growth, and succession, all harmonizing with the various functions assigned to them in different classes, orders, and genera, and with the modifications concomitant with specific differences of habit. So positive are the indications afforded by the teeth, that not only may the animal, once possessing it, be named with certainty, mammal, reptile, or fish, but be identified as horse, mastodon, elephant, saurian, batrachian, shark, or ray; its age, its species, may be ascertained, and even the nature of its food and its habits. It is not, therefore, surprising that odontology, as a chief department of comparative anatomy, should have borne a notable part in the investigation of the post-pliocene fossils of Ashley river.

"No country offers the odontologist a richer field than our own America, older, geologically, than 'old' Europe. In every quarter, the disemboweled earth yields up its fossil treasures—here of mammal, there of fishes, and in the Cretaceous, east, south, and west, a profusion of reptilian remains. Among the most remarkable of these last are the teeth of a thecodont saurian, which we have named *Astrodon*, found near Bladensburg; the magnificent teeth, jaw, and humerus of *Mosasaurus* discovered near Wilmington, Del.; and the colossal bones and exquisitely beautiful teeth of *Hadrosaurus*, an extinct lizard. This huge herbivorous saurian, allied to the famed *Iguanodon* of the Wealden England, was about twenty-five feet in length. Its *humerus* is twenty-three inches long, and seven inches broad at the tuberosities; the *ulna* twenty-three inches long and seven inches in circumference at the middle. The *femur* is no less than forty inches in length, ten inches wide through the internal condyle, and seventeen inches in circumference midway in its length; and the *tibia* measured thirty-six and a half inches, the circumference being about twelve inches.

"It was no difficult matter for a Leidy to recognize in this gigantic skeleton the framework of a lizard, and to affirm its high antiquity. But the diet of ancient, as well as of existing lizards, was various: some saurians feeding on insects, or birds, or flesh, in some form, while others are vegetable feeders, a circumstance to which the feet and jaws point vaguely, but which is established in the most positive manner by those organs having a first and very close relation with the aliment, the teeth. The tooth of *Iguanodon* found isolated in the Wealden by Mantell, was not recognized as saurian by Cuvier, who, nevertheless, in referring it to an extinct Rhinoceros, showed that its form, structure, and manner of wear, left no doubt as to the herbivorous character of its possessor. But, he subsequently justified himself fully, and proclaimed the true affinities of the great extinct creature, declaring it to have been a herbivorous saurian.

"Of *Hadrosaurus*, a number of teeth were found, black, and well preserved, and conical on one side; the other being wrought into two lateral grooves, leaving a sharp longitudinal ridge in the middle, like the side of a bayonet. Certain data were furnished by these portions of the buccal armature as to the feeding habits of the great extinct saurian; and *Hadrosaurus* was, from all the indications, declared to be an amphibious and herbivorous lizard. We enjoyed the rare opportunity of making thin sections of one of the teeth, which we shared with Prof. Leidy, and certainly nothing could exceed the beauty of the microscopic structure, far

surpassing that of the renowned *Iguanodon*, nor could any testimony be more conclusive as to the use to which the tooth must have been applied. It is typically herbivorous.

“Every day is bringing new facts to science, and enlarging the mind of man to fit him for a more worshipful contemplation of the Creator in the grandeur and exhaustless fertility of design in His works. From the remotest periods, a procession of organic forms advances slowly through the misty portals of time. As it proceeds, new things, endowed with life and action, join the throng; but old forms drop by the wayside, and appear no more forever, but as inanimate dust, marking the ‘foot-prints of the Creator.’ The great earth itself, is rent with commotions—a continent sinks below or rises above the mighty deep—but onward, still onward, grandly moves the pageant, evermore in the growing light. The ground trembles beneath its heavy tread—its pulse beats the ‘seconds of eternity,’ and its voices shake the air as an awful shout goes up when the Almighty places a spark of His own immortality upon the brow of the noblest, the lordliest form of being, and with which Divinity itself will deign to be invested.

“We swell the living crowd; and shall we not learn from the pathway that has been trodden, whither we are tending?”

PERISCOPE OF MEDICAL AND GENERAL SCIENCE IN THEIR RELATIONS TO DENTISTRY.

BY GEO. J. ZIEGLER, M. D.

SALUTATORY.

The object of this department of the journal is, as its title indicates, to present a periscopic view of medical and general science in their special relations to dentistry. But as the field is so very extensive, it will obviously be impossible to profitably notice everything in this connection within the brief limits assigned, or even to present in detail all that is of immediate and practical importance to the dental practitioner. Nevertheless, every effort will be made to exhibit as fully as possible the present state and future progress of general knowledge in its bearings upon dental science.

But as this knowledge is widely distributed it will necessarily require much research and labor to discover and apply it for the special purposes of this journal. It will, however, be the object, as well as duty of the writer, to seek it out, and present as full and comprehensive an abstract of all that is important and practical in this connection, as circumstances will permit. In fact, to act in this respect, as a sort of mental lens to collect certain diffused rays of intelligence, and concentrate them upon the particular branch of science to the cultivation of which this journal is devoted.

Etiology of Human Degeneration.—In the course of an instructive

article on "Human Progress," in the *London Lancet*, Dr. W. H. Walshe offers a classification of the agencies operative in the degeneration of the race, and makes some general remarks in elucidation of the subject. The following extracts are interesting and important:—

"Let me here, for the purposes of order and lucidity, expose tabularly those conditions which have been mainly accused of generating morbid races of men,—associating them according to their apparent connection or want of connection with civilization.

"Causes of degeneration of masses not dependencies of civilization, e. g.:	{	Alcohol, opium, tobacco, Indian hemp, etc.
		Specific kinds of deleterious food.
		Malaria.
		Certain diathetic diseases.

"Causes of degeneration of masses appertaining to the social conditions of civilization, e. g.:	{	Necessary	{	Town system, mental anxiety, struggle for existence.
				Certain poisonous or deleterious trades.
		Contingent or accidental.	{	Factory labor.
				Colonization.

"To examine all these influences, even in the most cursory manner, would obviously be impossible,—a few may be selected as specimens of the whole.

"1. Let me begin with alcoholism. 'Alcohol,' says a medical writer of the sixteenth century, 'strengthens the young, and resuscitates the old, promotes digestion, prevents blindness, puts an end to faintheartedness, and prevents trembling of the hands, rupture of the large vessels, and softening of the spinal cord.' More enlarged experience of the virtues of alcohol forces the people of the nineteenth century to take somewhat gloomier views of its actual workings on the human system. Taken in moderation, its effects are not demonstrably (at least have never been demonstrated to be) noxious; but unfortunately there exists in all populations a certain aggregate of persons beset with the 'fatal gift' of a passion for the abuse of spirituous drinks. In what way this passion is connected with individual organization (as I am persuaded it in some way often is) offers a problem of deep interest to the philanthropic physician,—for therein might be seized a clue to one form of prophylaxis. Meanwhile what are the results of yielding to the pernicious vice? In the drinker himself acute and chronic alcoholism, that is physical, intellectual, moral and emotional disease and degradation of peculiar type; on his family and kindred he entails poverty, destitution and crime: on his stock he engrafts the disposition to various brain-diseases of the insane group, idiocy, congenital or acquired, to brutality of disposition, and feebleness of procreative faculty; he takes his part in deteriorating the very fountains of life in the nation to which he belongs. Magnus Huss has shown that in Sweden the existing people have, through abuse of alcohol, fallen in physical strength and stature below the standard of their forefathers.

* * * * *

"It must, however, with pain be admitted, that, although the upper ranks have vastly improved, hitherto civilization has not checked the onward progress of the vice among the masses. In some countries, even, where intellectual culture is highly and generally developed, the consump-

tion of spirits annually increases,—and the reduced national mean duration of life under the influence of the poison, bears witness both to its potency, and the almost universality of its use. * * * * *

“Among morbid states on the increase, alcoholism, unquestionably in some countries, takes the leading place; diseases of the nervous class generally increase; apoplexy seems to grow more common in the direct ratio of the improvement in physical condition of a population; convulsions and diseases of dentition, uterine affections, and disordered parturition, cancer, and tuberculous diseases, all appear on the increase.”

Third Report of the Clinical Hospital, Manchester, containing Results in Physical Development, Hooping-Cough, and Transmitted Diseases.
By JAMES WHITEHEAD, M. D. London: 1859. (Extracts from a Review of the above by D. F. C.—*Am. Journ. of Med. Sciences.*)

“Under this unpretending and rather indefinite title, Dr. Whitehead has presented us with a series of statistics in reference to the physical development of children, and to certain questions connected with the etiology, history, and therapeutics of some of their more prominent diseases, which, as far as they go, are of deep interest to every practitioner in his study of the hygiene of the first stages of existence, and of the diseases which are then most liable to occur, with their proper management. These statistics are based upon facts derived from the observation of 2,584 patients, comprising those of all ages, from earliest infancy to the termination of the period of childhood, treated at the Clinical Hospital of Manchester, from January, 1856, to the end of October, 1858. * * * * *

“In order to ascertain whether a certain proportion of the diseases of infant life do not arise from a faulty condition of the development process, the result of causes that may be removed, and consequently to show, if this be the case, that such diseases are susceptible of prevention, inasmuch as the faulty condition which causes them may be more readily and naturally rectified by hygienic than by medicinal means, the patients treated at the hospital were subjected to a careful series of observation, to determine, as far as possible, the condition of their physical development.

“The objects aimed at in this particular branch of inquiry are: 1st. The laws of physical development in infancy, as indicated by the age at which the teething process commences, and that at which it is finally accomplished; the growth of the bony structures, as shown by the age at which that of the skull is completed; the age at which the faculty of walking is attained; all in a state of health. 2d. The manner in which one or more of these processes may be delayed by morbid agencies, and which of such agencies is the most commonly operative in its interference with the natural efforts.’

“The actual states of development are divided into the *good*, the *medium*, and the *bad*.

“The children marked as being of *good* development, are those brought under observation for disorders of local or of acute character, of climatic zymotic, or adventitious origin, not of inherited or constitutional tendencies to disease, in whom the process of development has not previously been interfered with, whose bodily health is, as a general rule, faultless, and whose parents are healthy. Those of *bad* development are they whose health has been deranged by inherited weakness or tendency to disease, by

want of a due supply of breast milk, by faulty diet, poverty, unhealthy locality or neglect. Those of *medium* development are such who, in any of these respects, cannot be classed with either of the preceding.

“Of 2,584 patients, the development was—

Good in	-	-	-	-	-	-	1,030
Bad in	-	-	-	-	-	-	615
Medium in	-	-	-	-	-	-	541
Unknown, or the accounts not reliable, in							398

“The last two items, amounting to 939 individuals, are consequently rejected. The first two, representing the two extremes, being alone serviceable in drawing conclusions.’

“The results in relation to the process of teething are based upon observations made in 763 children of good, and in 485 of bad physical development, for the *first* pair of teeth; and for the other teeth, in 83 children of good, and 72 of bad development, between twelve and thirteen months old; in 316 of good, and 137 of bad development, of two years of age.

“From five tables given in the report, it appears that, in the great majority of children of *good development*, namely, in 600 out of 763 (79 per cent.) teething had fairly commenced previously to the end of the eighth month, and in only 21 per cent. was it delayed beyond the eighth month, namely, in 81 of whom it occurred between the eighth and ninth months, and in 64 between the ninth and twelfth months. In none was it delayed beyond the fourteenth month.

“In children of *bad development*, only 161 out of 435 (37 per cent.) cut their first teeth before the end of the eighth month; and in 63 per cent. teething commenced after the eighth month, namely, in 63 at nine months, in 107 between ten and twelve months, and in 104 after the twelfth month.

“Of 83 patients of *good*, and 72 of *bad* development, between twelve and thirteen months of age, of the *first* only one had no teeth, but of the *second*, 24. At the age of two years, of the children of *good development* 88.6 per cent. had all their teeth; while in those of *bad development* in only 21.8 per cent. was teething completed. Of the *former* only one had so few as twelve teeth at two years of age, but of the *latter* there were 25 whose teeth at that age did not exceed twelve.

“In 62 children of *good* development, teething was completed previously to the second year, namely, in one at twelve months, in two at fourteen months, and in 47 before the end of the twentieth month. In 14, teething was not accomplished until after the age of two years.

“In 53 children of *bad* development, two only completed their teething before two years of age, one at twenty, and one at twenty-one months. In 51, teething was not completed until subsequent to the second year.

“‘From the above statement,’ observes Dr. Whitehead, ‘it will appear that in children possessing the advantages of mature intra-uterine growth, untainted parentage, proper nourishment, and healthy locality, the teething process ought to commence at from five to eight months, and that the accomplishment of its different stages at the periods mentioned, gives fair promise for the due attainment of the other processes presently to be mentioned.’

“‘From these data it may be inferred that at the age of fourteen months, a child should have ten teeth or more, and that six teeth are the

minimum number compatible with good development and favorable prospects at that age.

“The complete irruption of the whole twenty teeth was accomplished in children having a favorable state of the development processes, in nearly 90 per cent., at the age of two years; and as in a considerable number of them this process was completed much earlier, statistics will warrant the conclusion that the teething process should, as a rule, be completed in healthy children at the age of two years.

“It seems worthy of notice that *precocious dentition*, that is, the irruption of the first teeth before the fifth month, had not in every case a favorable significance. Among the patients comprised in the above records, 180 were of this category, having commenced teething at two, three, and four months. Of these, 38 were of bad development, in many of whom the process was subsequently interrupted—the next teeth after the first two not appearing until many months afterwards, sometimes not until very late. In several instances in which the first two teeth were cut at two months, the next did not appear until after the age of two years. This precocious dentition would appear, therefore, according to the above data, to give little promise for the favorable progress of after development, inasmuch as among the number recorded of this class, a considerable proportion were afterwards altogether badly developed. On the contrary, the precocious irruption of *all* the twenty teeth is the constant attribute of an excellent state of development. Not a few of the children who accomplished the teething process at sixteen or eighteen months, or earlier, were able to walk freely at nine months, and were exceedingly strong in all their physical faculties.

“As regards the disorders of teething—the alleged disturbances, namely, which are said to be caused by difficulties of protrusion and over-tension of the enveloping gum, it appeared evident, in many cases, that both the concomitant ailments, and the retardation of teething, depended more upon the faulty state of the developmental processes, generally, than upon local irritation, as it was in but few instances, and these only in infants of highly excitable and nervous temperaments, that scarification was followed by relief. These disorders are doubtless due to constitutional, rather than to local causes.

“Three children had each two teeth in the lower jaw at birth. In two of these it was found necessary to remove them, because of the injury they inflicted on the under surface of the tongue while sucking; in the third, now two years old, the congenital teeth remain—the whole teething process being completed, and the child well grown and healthy.”

After some notice of “the condition and progress of ossification” in the cranium, the reviewer observes that—

“According to Dr. Whitehead, a child of good development, with closure of the fontanelle at fourteen and a half months, has usually about fourteen teeth, and has been able to walk firmly several weeks or months; while, in one having at this age the fontanelle largely opened, it frequently happens that not more than from two to six teeth have appeared, and the child is unable to walk. Even at the age of two years, when the teething process should be completed, the fontanelle being still open, there are generally not more than eight to twelve teeth.

“The closure of the fontanelle, therefore, gives a fair indication of the

state of the developmental processes, being accompanied, generally, with the exception of a few cases of irregularity, by a corresponding condition of dentition, of the faculty of walking, and of the whole physical frame.”

Further on in the course of the review, which affords much information on the subject of infantile growth, it is stated that “Dr. Whitehead gives the following as the signs of good development:—

“At the age of *one month*, in children favorably developed, the margins of the sagittal suture at each extremity are already in apposition, and its length shortened one inch or more; the abdomen, although exceeding the chest in girth, should not be tumid; the child should be fully satisfied with a breast meal every 2 or 2½ hours; the food should not be returned in any quantity, and the aggregate hours of sleep should be at least twenty out of the twenty-four.

“At *two months*, the sagittal suture should be reduced from 5½ to 3½ or 3 inches; the girth of the head should be 2, and that of the chest 1½ inches more than they were at birth; the breast-milk alone should entirely satisfy the appetite; the body and limbs should be plump and rounded, and the sleeping hours, eighteen to twenty out of the twenty-four.

“At from *five to six months*, the sagittal suture should be reduced to 2 or 2½ inches, and the coronal to 1½ or 2 inches, so that the fontanelle at this period has a diamond shape, with its sides encroaching upon the space, with slightly curved outlines; the abdomen should be less prominent, the girth of the head and chest each 2½ to 3 inches more than at birth; the breast-food should fully satisfy his wants, at intervals of 2½ to 3 hours, and he ought to sleep seventeen to nineteen hours.

“At *eight months*, there should be two teeth; the fontanelle should not exceed 1 to 1½ inch in each direction; the flesh should be firm, the movements of the limbs vigorous, with an inclination to feel the ground with the feet; the sleep should be about sixteen hours, and the circumference of the skull should not exceed that of the chest by more than 1½ inch.

“At *fourteen months*, there should be eight or more teeth; the fontanelle closed with bone; the skull not exceeding the chest in its girth more than one inch; the prominence of the abdomen perceptibly reduced; the child should be able to walk, and should sleep placidly fifteen or sixteen hours in the aggregate.

“At *two years* of age, all the twenty teeth should have protruded; the skull not exceeding the chest more than three-quarters of an inch; the abdomen not protruding beyond the level of the chest; and the abdominal functions regular, not requiring the use of medicine.

“At *three years*, the chest in girth should nearly equal that of the skull; the teeth should be sound, the breath sweet, the limbs straight, the wrists and ankles not bulky, the appetite not voracious, without craving for food or drinks in the intervals.

“At *four years*, the circumference of the chest should exceed that of the head by half an inch; the stature should become more rapidly increased: the limbs, although apparently thinner, should have the muscles firm, and the extremities of the long bones not notably bulky. The abdomen should not be tumid, as is frequently the case at this and earlier ages, from disordered functions and the presence of worms.

“At *eight years*, the girth of the chest should exceed that of the skull by 2 to 3, and at *twelve years*, by 3 to 5 inches.

“The face should be larger, in appearance at least, than the forehead, especially during the first three years; the shape of the skull not angular or flat, but rounded at the sides, with a proportionably elevated summit, and the chest regularly rounded, without lateral compression.

“Deviations from this general rule not unfrequently occur in children of otherwise good development, but without a bad significance. The most frequent of these irregularities is retardation of the teething process, sometimes to a considerable extent; but in such cases, if the fontanelle be early closed, and the faculty of walking duly advanced, there is no need to fear about the after progress.”

“Experimental Researches on the Artificial Production of Bone by Transplanting the Periosteum, and on the Regeneration of Bone after Resections and Complete Ablations.” By M. OLLIER. (Translated from the *Journal de la Physiologie*,” by W. A. H.—*American Journal of Medical Sciences*.)

“M. Ollier divides his experiments into three classes.

“1st. Those in which the strip of detached periosteum was left more or less adherent to the bone. The strip was grafted among the muscles, or placed immediately under the skin, but it continued to receive vessels from the bone.

“2d. Those in which the strip was entirely cut away from the bone, three, four, or five days after the transplantation, so as to interrupt all communication with the bone.

“3d. Those in which the strip of periosteum entirely separated from the bone and the rest of the periosteum was immediately transplanted to neighboring or distant parts of the body

“The tibia was chosen for the experiments of the first series. The general manner of proceeding was as follows, rabbits being the animals selected:—

“An incision was made along the crest of the bone, the muscles which covered the portion necessary to be exposed being carefully pushed aside. The periosteum was thus, in the first place, isolated from all the surrounding soft parts. The strip of periosteum which it was desired to detach was then marked out with the point of the scalpel, and dissected off from the bone beneath, but left attached by one extremity to the rest of the membrane. A situation was then selected either under the skin or among the muscles, and the band of periosteum was then securely fixed in its new position by a suture passing through the free extremity.

“When the animal is vigorous, no inconvenience is experienced from the foregoing operation.

“During the first two or three days the periosteal band gradually swells, and can readily be distinguished through the superimposed soft parts if the inflammation be not too great. At the end of three or four days it becomes more consistent, and in a short time is as resistant as cartilage. It sometimes acquires a considerable degree of thickness, and becomes as large as the tibia itself.

“If, after the lapse of from five to seven weeks, the animal, subjected to an operation such as above described, be killed, a mass of true bone will be found to have grown from the under surface of the detached band of periosteum, of circular, spiral, or such other shape as may have been given to the strip in the first instance.

"If, however, the animal be old—five years for instance—the strip of periosteum exhibits but very little trace of ossification. Hence, as M. Ollier remarks, we have an additional proof that the osteogenetic faculty of the periosteum diminishes with age, though it is not altogether abolished.

"From the second series of experiments, similar results were obtained. Bone was found to have formed, though the strip of detached periosteum was entirely severed from its connection with the remainder, three or four days after the operation.

"Even in the third series, in which the strip of periosteum was at once entirely separated from all connection with the bone, and only connected with the soft parts by a few muscular fibres, true bone was found growing from it six weeks after the operation. It was found that the osteogenetic faculty of the periosteum was not of the same degree in all parts of the body. Thus, in the transplantation of the pericranium, but few ossific points were seen, and these were exceedingly small.

"A great many important points are next discussed. These relate to the character of the bone obtained by the transplantation of the periosteum, its mode of development, etc. etc. In the second part, the regeneration of bones after their extirpation, the reproduction of the articulations, etc., are considered.

"From his researches, M. Ollier deduces the following conclusions, all of which are, we think, abundantly sustained by the facts he has established:—

"1st. The production of bone continues on the under surface of the transplanted periosteum. Moreover, when this membrane is grafted, new bone is obtained adherent to the bone to which the periosteum has been attached, or entirely independent, according as the periosteal band has been left continuous with the rest of the periosteum, or altogether detached.

"2d. In transplanting strips of periosteum, bone is obtained of various dimensions and figures, such as circles, spirals, etc. etc., according to the extent and position of the strip. Entire control of the process of ossification is thus obtained, and it can, therefore, be directed at will.

"3d. The bone thus obtained is true bone, constituted of the anatomical elements which characterize the osseous tissue, so that as organization advances, these elements are disposed as in normal bone. There is thus formed a compact exterior layer, with a medullary cavity interiorly. This cavity is filled with marrow of the same character as that found in ordinary bone.

"4th. The new bone is developed in the subperiosteal blastema which exists normally on the internal surface of the periosteum. This proposition is demonstrated by the examination of the development of the new bone, and by experimentation, whence exact and conclusive results are obtained.

"5th. The blastema is specially constituted of nuclei, free, or inclosed in cells, swimming in a semi-liquid or finely-granular matter, and mixed with a greater or less quantity of fibrous elements.

"These several embryonic elements are developed and multiplied in the primitive amorphous exudation furnished by the capillaries of the periosteum.

"6th. A cartilaginous substance is met with when the subperiosteal product is observed during the first few days which follow the transplantation, but the growth of the new bone is effected without the intermedia-

tion of this element. This cartilage, moreover, differs in its anatomical elements from normal articular cartilage.

"7th. The bone from which a strip of periosteum is removed, presents, at the end of a certain time, an analogous membrane covering the denuded part.

"8th. When a bone, or a fragment of bone, the periosteum of which is preserved, is removed, (that is to say, the membrane being left in the wound adherent to the parts which normally surround it,) this bone, or portion of bone, is more or less perfectly reproduced at the end of a certain time. The regeneration is, in some cases, very complete. The surrounding soft parts cannot supply the periosteum. They are not directly concerned in the process of ossification.

"The production of bone is proportional to the amount of periosteum left in the wound. When the entire thickness of a bone is removed, this membrane alone can be looked to for the reproduction of the extirpated part.

"9th. After the resection of the articular surfaces of two contiguous bones, a new articulation is formed if the capsule and the ligaments are allowed to remain connected with the periosteum of the resected bone. The two osseous extremities are regenerated separately.

"*Obstinate Chronic Discharge from the Nostril Removed by Extraction of a Carious Tooth.*—Mr. FLEISCHMANN, of Wrexham, relates (*British Medical Journal*) the following example of this: Miss Rose S., a little girl, aged five years, had been troubled for about three months with a constant, though not profuse, discharge of slightly purulent mucus from the right nostril; it appeared to be the sequel of a cold. The mucous membrane, so far as it could be examined, was healthy, and there were no indications of any morbid growth. She was ordered a strong injection of gallic acid, and took concurrently small doses of the sesquichloride of iron. The only advantage she derived was, that the discharge lost its purulent character; in amount it remained the same, though the treatment was long persevered in, and other local astringents tried. I suspected that there must be some undiscovered local irritation. Not being able, on careful examination, to find anything wrong in the nasal passages, I looked to the condition of the teeth, and finding the right upper canine carious, removed it. The discharge was much lessened on the next day, and in the course of a day or two, disappeared altogether.

"This short account may, perchance, afford a useful hint to some one; at any rate, it is a good illustration of reflected irritation, and teaches us that oftentimes the *fons et origo mali* is not just where we might expect to find it."—*Ibid.*

"*On the Cause of the Color of the Venous Blood.*" By T. A. DEMME, M. D.—"The distinction between arterial and venous blood has of late attracted considerable attention, and to this subject Bernard has directed the penetrating powers of his mind.

"The grand fact that he announces is, that under certain circumstances the venous blood proceeding from glands, assumes the characteristic appearance of arterial blood. The first observation was accidentally made. In experimenting upon the secretion of various substances by the kidneys, it was noticed that the blood of the renal vein was of a bright arterial hue, and that this hue was the more vivid in proportion to the activity of renal

secretions. More extended observations were made, and the fact demonstrated, that during the functional activity of *all* glands, the venous blood presents the usual appearances of arterial blood.

"The following propositions embrace the observations and views of Bernard upon this subject:—

"1st. This change in the blood depends upon the action of two nerves of different origin and antagonistic action.

"2d. The sub-maxillary gland of the dog is supplied by a very small branch of a nerve, which, behind the lingualis, separates from the fifth pair of nerves, but actually has its origin with the seventh pair, which it leaves near the chorda tympani. Upon irritating this nerve, the nervous blood of the gland becomes of a bright red; if cut, the color of the venous blood is restored, but upon irritating the peripheral extremity, it again becomes of an arterial color.

"3d. The dark color of the venous blood is not the passive result of the quiescence of the above nerve, but the consequence of the activity of an antagonistic nerve, which is a branch of the sympathetic, arising from the gangl. cerv. suprem. Upon cutting this filament, the reverse phenomena occur to those which obtain when the nerve first alluded to is cut.

"4th. Both of these nerves act on the capillary circulation; the former accelerates, the latter retards the movement of the blood.

"5th. The former *actively dilates* the capillaries, the latter contracts these vessels. They are both motory nerves.

"6th. They are antagonistic in their action, inasmuch as the change in color is more marked upon irritating one of them after the other has been divided.

"7th. Upon the capillaries contracting, a more immediate contact of the blood particles and the gland elements is favored, and in consequence a more complete interchange of matter. The dilatation of the capillaries has the reverse effect."—*Medical and Surgical Reporter*.

"*On Cases connected with the Teeth.*" By HENRY HANCOCK, ESQ., F.R.C.S., Surgeon to the Charing-cross Hospital. "In the present paper I do not profess to give even an epitome of the diseases connected with the teeth, but merely to relate a few instances among many which have fallen under my own observation wherein the cause of mischief would seem to have been overlooked."

"CASE 1.—A gentleman, aged thirty, was sent to me from the country for lock-jaw and pain under the right ear. He could only separate his jaws for about half an inch in front, and had been in that state for nearly twelve months. He attributed the mischief to cold, and had been subjected to various kinds of treatment, including leeching, blistering, etc., without benefit. Upon careful examination, I observed that his teeth were much crowded and wedged closely together, particularly in the upper jaw, and concluded that to be the cause of suffering. I accordingly requested Mr. Alfred Canton to see him with me. He extracted one of the anterior molar teeth from the upper jaw. The tooth was very large, but perfectly sound, and the patient returned home in the course of a week—cured.

"CASE 2.—A young woman was brought to me at the Charing-cross Hospital with wry-neck, the head being drawn down nearly to the left shoulder, accompanied with considerable pain. She had suffered in this way for about six months, and had been treated by blisters to the spine,

leeches, various liniments, and, internally, with quinine, calomel, various preparations of iron, valerian, etc., but without benefit. I was informed that, with this exception, she was in good health, and I therefore concluded the mischief depended upon some local cause. An examination of the spine in the cervical region showed that there was no disease in that situation; but, upon looking into her mouth, a stump, and a partially decayed tooth, were seen in the lower jaw, on the left side. When I decided to have these extracted, she assured me they caused her no inconvenience. Nevertheless, she was induced to have the operation performed, and she got well in a few days.

"CASE 3.—Mrs. D—— consulted me for a tumor in the right cheek, of six months' duration. She was a fashionable ladies' nurse, and had been seen by various of the leading physician-accoucheurs, who had physicked her, ordered poultices and iodine to be applied, and finally advised incisions into the part. Fearing that this might mark her face and prove prejudicial to her business, before having it done she applied to my friend, Mr. Whitmore, who sent her to me. I discovered that a molar tooth in the right side of the upper jaw was partially decayed, and had been stopped; I therefore advised her, before submitting to any operation on the tumor, to have the tooth removed. She took my advice, and came to show herself to me three weeks after. The tumor had then entirely disappeared. Beyond extracting the tooth, nothing had been done either locally or generally.

"CASE 4.—*Amaurosis depending upon Dental irritation.* J. K——, aged eleven, admitted under my care into Charing-cross Hospital, November 11th, 1854. About a month previously, upon waking one morning, he found he was entirely blind. Previously he had nothing the matter with his eyes, and when he went to bed on the preceding night could see distinctly. He consulted a surgeon in the country, who prescribed medicines, blisters, and subsequently cupping; but as he did not derive benefit therefrom, he was, at the expiration of a month, sent up to me at the hospital. His pupils were dilated, fixed, and uninfluenced by light, which he could not distinguish from darkness. The suddenness of the attack and the absence of the usual premonitory symptoms, led me to conclude that the mischief was functional rather than structural, and I consequently examined his teeth. I found these much crowded and wedged together, the jaws, in fact, not being sufficiently large for them; and I therefore suspected that the amaurosis depended upon this cause. I accordingly ordered him to be shown to Mr. Roberts, the dentist to the hospital, who on the 17th November, extracted two permanent and four milk molar teeth. On the same evening, the boy could distinguish light from darkness, and on the following morning, could make out objects. From this time his sight rapidly improved, and he was dismissed cured on the 28th, the only treatment beyond the removal of the teeth being two doses of aperient medicine.

"I have met with other cases in which amaurosis had existed for a longer period than in that just related, the patients having been blind for six or eight months, and subjected to the usual treatment for amaurosis, *e. g.*, salivation, cupping, leeches, blistering, tonics, etc.,—unsuccessfully; but who have been cured by the abstraction of a decayed tooth, as in the following case.

"CASE 5.—A man from the country applied to me at the Royal Westminster Ophthalmic Hospital for total blindness of the right eye of eight

months' duration. The attack came on quite suddenly, not having been preceded by pain, *muscæ*, flashes of fire, or any of the usual precursors of amaurosis. He could not distinguish light from darkness; the pupil was dilated and fixed. The various remedies for amaurosis had already been employed in the country without success. I directed my attention to his mouth, and found the second molar tooth in his right upper jaw much decayed. This was extracted, and the patient desired to attend again at the hospital in two days. At his next visit he could see, and was able to distinguish objects, though not very clearly. In the course of a few days he returned to the country quite well. He had no other treatment beyond the extraction of his tooth.

"It is of importance to diagnose correctly between this and structural amaurosis; for though purely of a functional character in the first instance, and capable of being cured, as we have seen, by very simple means, still, if mistaken for any length of time, and treated for the structural form of the disease, sensibility of the nerve may become permanently impaired by the long-continued irritation, with consequent injury to sight.

"These cases may usually be distinguished from those depending upon actual disease, by the suddenness of the attack; they are rarely preceded either by dimness, pain in the head, *muscæ volitantes*, flashes of fire, or any other symptoms indicating congestion or inflammation of the eye, optic nerve, or brain; and in many instances they are unaccompanied by pain in the tooth or teeth, so that it is often very difficult to convince patients that parts causing them no pain, and to them apparently so unconnected with the eye, can possibly be the cause of such serious effects upon that organ.

"I am indebted for the the notes of the following case of ptosis and diverging strabismus to Mr. Mayou, house-surgeon of the Royal Westminster Ophthalmic Hospital:—

"CASE 6.—H. R——, aged twenty-nine, a native of Hereford, was admitted, under Mr. Hancock's care, into the Royal Westminster Ophthalmic Hospital on July 3d, 1858. The strabismus had existed for nearly three years. The ptosis is of quite recent date, about a fortnight's duration. The eye (the left) is quite closed. The mischief came on suddenly, without pain either in the head or eye. Ordered compound iron mixture, one ounce thrice daily, with an aperient occasionally at bed-time.

"July 12th.—Is no better. Mr. Hancock examined her mouth, and found two molar teeth on the left side of the upper jaw decayed. She assured him that they caused her no pain; but he ordered them to be extracted, which was done.

"14th.—The ptosis is much better.

"16th.—The ptosis has now assumed an intermittent character. The eye is quite open in the morning, but towards noon the lid droops, and does not assume its proper position until the evening. To take disulphate of quinine, five grains, twice a day.

"20th.—Ptosis now cured, and the strabismus better, so slight as not to require operation.

"The patient remained in the house three or four weeks longer, when she was discharged cured."—*London Lancet*.

"*Unusual Nervous Phenomena Dependent upon Inflammation and Abscess above the root of the left upper anterior molar tooth; the antrum probably involved.* DR. MORLAND reported the case, as follows:—

"On the 19th of March, at 9 o'clock, P. M., I was called to visit W. E., a young man somewhat over twenty years of age, who was apprehensive that he had erysipelas of the face. On examination, a circumscribed swelling, of a stony hardness, was perceived upon the left cheek, principally covering the antral region. From this point, a degree of diffuse swelling extended upward, and involved the eye-lids, nearly closing the eye. There was a dark-red suffusion of the integument of the affected parts, and which, among friends and casual observers, might well enough have induced the suspicion of erysipelas. There was also a great deal of heat of the surface, but no tingling, smarting, nor pain of any consequence. The most striking phenomenon was an involuntary jerking, twitching, and, at times, an entire lifting of the head and upper portion of the body from the pillow and mattress on which he lay. Occasionally, the legs would be suddenly and forcibly thrown forward and upward—the feet flinging up the bed-clothes violently. The patient was perfectly quiet in the intervals of these spasmodic accessions; and when they supervened, although entirely conscious of them, he was unable to restrain himself. No pain accompanied the abnormal muscular action; indeed, he nearly always smiled at these times, as if aware that there was something ludicrous in his appearance.

"He was at once assured that he had not erysipelas—at the prospect of undergoing which complaint he had been greatly alarmed. On questioning him as to the state of his teeth upon the affected side, he said several were defective; and on inspection, not only was this found to be the case, but a false tooth was discovered, which the patient stated had been fastened two or three days previously, by means of a wooden peg, into the root of the anterior molar—the latter having been drilled for the purpose. The original tooth partially decayed, had been broken off by some hard substance the patient was biting.

"I advised the immediate removal both of the false tooth and the root which supported it; but to this Mr. E. would not then consent, being very anxious to retain both if possible. Frictions over the left cheek and around the temple, with warm laudanum, were directed, together with a hot foot-bath. Twenty drops of laudanum were administered internally, 'as he could not sleep for the twitching.' A brisk cathartic was also ordered to be taken in the morning. The pulse was quick, sharp, and about 100 in the minute; the tongue was covered with a thick, white, pasty coat, and the breath was very offensive. Costiveness had long been troublesome. The patient was restricted to gruel and cool drinks.

"The next morning he was better, but the local appearances were the same. He thought the spasmodic movements were somewhat less frequent, and that his face felt 'less stiff.' I noticed, however, during the fifteen minutes, or thereabouts, occupied in my visit, several convulsive motions of the facial muscles, and two or three times his head and shoulders were quickly and completely raised from the bed, as on the previous evening. I observed that the intervals between the attacks were obviously lengthened when the patient's attention was closely engaged by conversation; and he had himself remarked the same thing. There was not, however, complete cessation of them at such times.

"The patient allowed me, at my second visit, to remove the false tooth from the root, but was very tenacious as to keeping the latter in place, against my earnest remonstrance, and notwithstanding he was told that pus was undoubtedly pent up above the root, and very likely within the

antrum—the dangers of maintaining which condition were fully represented to him. He persevered in this course for three days longer, when, becoming annoyed at the persistence and increasing frequency and violence of the nervous manifestations, and beginning to feel a deep-seated, throbbing pain in the region of the antrum, he consented to have the fang removed. This was done by the dentist who had set the tooth, and with the patient under the influence of ether. No pus followed the extraction of the root, but, on perforating the socket of the tooth, a very large amount gushed out, and continued to flow freely for some time.

“It seems nearly certain that the antrum contained the most of the matter; there was, throughout, every indication of its being affected. The position of the tooth-fang is also corroborative. Whether the pressure of the pus upon those branches of the superior maxillary nerve which ramify upon the inner wall of the antrum, was the cause of the spasmodic muscular efforts mentioned, is a question which physiologists may possibly determine.

“The symptoms all subsided rapidly, after the evacuation of the purulent collection.”—*Boston Medical and Surgical Journal*.

“*On the Treatment of Odontalgia in Pregnancy.*” By H. R. STORER, M. D. “Mrs. H——, of Roxbury, applied to me for treatment, on the 14th of October last. Patient, an American by birth, though the wife of a German, is a well-formed, healthy-looking woman, some twenty years of age, and was then five and a half months gone with first child. Her general health had been good, and till the present she had never suffered from any form of neuralgic pain.

“She reported excessive toothache, of nearly two months’ standing; that it commenced on the left of the lower maxilla, but then affected both sides of both jaws; that during the whole period she had been under the charge of a physician, and had been thoroughly and actively treated by anodynes, local and general, by antispasmodics, purgatives, fomentations, counter-irritants; that a tooth, apparently the only carious one she had, had been extracted ten days previously, and that it had been proposed to remove others, to which, however, she would not consent—all without the slightest relief.

“She alleged, and showed, loss of sleep and of appetite, great general prostration, excessive despondency of mind. After the extraction of the tooth, abortion had threatened, and she now begged that it might be brought on, declaring, if refused, that she would induce it upon herself, rather than endure further pain.

“She was ordered a fragment of pellitory root, pyrethrum, as a direct gingival stimulant, though horseradish would probably have answered the purpose, and on the second day presented herself cured. There has been no return of the malady, save a slight attack on January 19th, which was readily relieved by the same treatment. Patient was confined on February 3d, and is doing well.

“I report this case for two reasons. In the first place, as an instance of the frequent success of simple and apparently trivial remedies after severe ones have failed. The affection seems to have been entirely neuralgic in its character, reflex, the result of the uterine irritation. All other causes mentioned by writers as liable to produce it were absent; there was no local inflammation, no general catarrhal affection; the dis-

order did not commence at, and apparently was in no way dependent upon, the carious tooth, at least it was not relieved by its removal, nor by the local blood-letting then occasioned. *

"I am aware that sialagogues, according to Gardien,—and he is apparently endorsed by Churchill,—are supposed indicated only in those instances where the toothache is in consequence of a general catarrhal affection, which did not here exist; but on the other hand their use would seem, on the simplest theoretical grounds, among the first procedures that would occur to the mind.

"The second of the reasons referred to is the following: that I may express my strong disapproval of the practice, still extensively obtaining among physicans and dentists, of subjecting patients to the risk of miscarriage, which must be confessed excessive, by the extraction of teeth during pregnancy. This procedure should in no instance be resorted to till every other measure which affords any prospect of relief has been faithfully employed. In the history reported, it is seen that such was not the case.

"Extraction has been recommended by authorities who are respected, by Campbell, Gardien, Capuron and others, on the supposition that there is a greater likelihood of abortion from the continued pain; but against this argument I place the facts that, after resisting many remedies, the pain often disappears spontaneously—as is indeed allowed by one of the writers instanced, Capuron—and that in more plausible measures, tried and untried, readily occuring upon reflection to all who do not blindly follow the books, there is, I think, a greater probability of success. Anesthesia, local and general, have both been found to avail. I would suggest, as worthy attention, a modification of the process of subcutaneous injection, proposed by Alexander Wood, of Edinburgh, and so successfully employed; merely here introducing the opiate beneath the mucous membrane, which I am not aware to have yet been done.* Should this also fail, a direct topical application, either of a local anesthetic or a gentle stimulant, might be made to the cervix uteri; but as this latter procedure, though at times successful in the obstinate vomiting of pregnancy, cannot be used with too much caution during gestation, would, therefore, be seldom justifiable; and only in the cases where the extraction of teeth in pregnant women can ever be defended, those, namely, where abortion is actually threatening and apparently at hand."—*Atlanta Medical and Surgical Journal, from American Journal of Medical Science.*

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"*Are Men and Monkeys Similar?* At length the celebrated question is settled; and how do you suppose it is done?

"The intermaxillary bone has been the bone of contention. This bone has been found only in the fœtus of the human species, while all the other mammalia possess it in adult life. But somebody (Blumenbach) found it *not* in a monkey. Then again the monkey was declared equal to the highest of the mammalia. M. E. M. Rousseau told the Academy of

* "After this paper was in type, I find, by the Edinburgh Medical Journal for Nov. 1858, page 424, that the above suggestion has been partially anticipated; a dentist, Dr. Smith, having had recourse to the measure, for the painless extraction of teeth. The experiment does not yet seem to have been tried, however, as here proposed, with a view to prevent that operation."

Sciences, Paris, (see *Gaz. des Hop.*, No. 151,) that he, like Camper, had found this difference in the structure of man and monkey. He has examined every species of ape, and he finds the intermaxillary bone uniformly present. It is sometimes soldered or united with the superior maxillary by age, but it is always present as a distinct bone; and the skeleton examined by Blumenbach, in which he found no intermaxillary, must have been of extreme age.

"*Man then is the only mammal which lacks the intermaxillary bone. A monkey is a mammal; ergo, apes and men are dissimilar. Q. E. D.*"—*Pacific Medical and Surgical Journal.*

"*On Narcotic Injections in Neuralgia.*" CHAS. HUNTER, ESQ., House Surgeon to St. George's Hospital, at the close of a paper on this subject, in the *Medical Times and Gazette*, offers the following conclusions:—

"In considering the results of the trial of the local treatment in the two cases, the advantages obtained appear to me to be—

"1. That much less constitutional (nervous) irritation attends the local introduction of the narcotic than when it is given by the stomach.

"2. That the effect of the narcotic is more immediately produced.

"3. The action of the narcotic appears more sure when injected. The exact amount taken into the circulation can be more readily seen, and the risk of contamination or alteration which it is exposed to, given by the stomach, is avoided.

"4. It appears to exert more benefit on the local affection when it has to be absorbed from the part affected itself, probably from being brought more directly into contact with the nerves involved in the disease.

"On the other hand, there are the disadvantages; these are chiefly—

"1. The pain occasioned by the introduction of the fine canula.

"2. The chance of the fluid escaping from the wound or puncture.

"3. The production of local inflammation, effusion of blood, abscess."—*Maine Medical and Surgical Reporter.*

MISCELLANY.

Dr. THOMAS INMAN, of Liverpool, says, (*Maine Medical and Surgical Reporter*, from *Braithwaite's Retrospect*,) that he knows "a gentleman whose face has been rendered a blue or slate color by the continued application of very strong argentine solutions (Arg. Nit.?) to the fauces."

M. DE CONDE affirms (*Peninsular and Independent*, from the *British and Foreign Medico-Chirurgical Review*) that "perchloride of iron exerts an instantaneous hæmostatic effect upon the hemorrhagic mucous membrane, and an indubitable modifying influence upon the mucous secretion."

Dr. R. W. EVANS strongly recommends (*American Druggists' Circular*) the muriate of ammonia in odontalgia. He says: "Take about two drachms, and apply it to the aching tooth for about half an hour; during which time, a constant stream of saliva will flow from the mouth." It probably acts generally as well as locally. It is undoubtedly highly beneficial in removing neuralgia, often acting like a charm, as the writer can testify from professional experience.

According to FERGUSON, (*London Lancet*), "in the great majority of cases of hare-lip, the fissure is situated on the left of the mesial line."

"The leptothrix buccalis is found in almost every mouth, if any decomposing food remains about the teeth."—Dr. ROGERS.—*London Lancet*.

"Algæ constantly occur upon the tongue and between the teeth of the most cleanly individuals."—Dr. HARLEY.—*Ibid*.

M. FORGET has been awarded (*Pacific Medical and Surgical Journal*) by the Academy of Natural Sciences, Paris, a prize of 1,500 francs for his "Researches on the Anomalies of Dentition."

M. CHRISTOFLE states (*Journal of Franklin Institute*) that bronze formed of 90 or 95 parts of copper and 10 or 15 parts of aluminium, is superior to bronze, iron and steel. It may be "worked hot as easily as the best quality of steel."

The per-manganate of potash in the proportion of half a drachm to the pint of water is said to be a powerful disinfectant, and a very soothing and healing application to ulcers, burns, etc.

Experience has shown that wire of silver, lead, and other metals, is superior to silk and the various organic substances for sutures.

NEW YORK STATE DENTAL CONVENTION.

The undersigned, members of the dental profession in the City of New York and vicinity, conceiving the many and great benefits that must arise from an association of its members throughout the State, in the spread of information, the encouragement of industry, and originality, and the promotion of good feeling; and recognizing the healthful progress and advancement of similar associations in other States, would respectfully and cordially invite the dentists of the State of New York, and adjoining States, to meet at Cooper's Institute, in the City of New York, on the 6th day of September next, at 10 o'clock, A. M., for the purpose of discussing and agreeing upon the organization of a State Association. And it is hoped that all who take an interest in the progress of science and the well-being of their profession, will cheerfully comply with this request, and that such a meeting shall be gathered together on this occasion as shall lay the foundation of an edifice which shall last as long as the dental profession shall possess that community of interests which induces the present movement.

New York.—J. Smith Dodge & Son, F. H. Clark, Benj. Lord, B. W. Franklin, T. H. Burras, L. Covill, H. Crane, A. C. Castle, S. W. Judson, E. D. Root, J. S. Ware, G. H. Perine, Geo. Clay, J. G. Ambler, John Allen, A. M. McIlroy, Geo. Smillie, Wm. T. La Roche, and others.

Brooklyn.—H. N. Stratton, C. A. Marvin, J. C. Munroe, J. Brunique, S. W. Bridges, H. J. Merriek.

Williamsburg.—Wm. B. Hurd, E. Cheney, T. E. Trendelenburg, L. H. Twitchell, R. T. Ambler, Wm. C. Parks.

[The above was received too late to occupy its proper position.—PUB.]

THE
DENTAL COSMOS.
NEW SERIES.

VOL. I.

PHILADELPHIA, SEPTEMBER, 1859.

No. 2.

ORIGINAL COMMUNICATIONS.

—
PRACTICAL HINTS.

BY J. D. WHITE.

After having determined to destroy the pulp of a tooth, we proceed to remove the decay from the cavity, in order to place the destroying agent in as close proximity to the living pulp as possible, because the intervention of a foreign substance between the tissue and the remedy will retard its action; and, instead of obtaining an entire death of the pulp, we will only excite in it an uncontrollable irritability. It is always to be regretted, when this latter condition occurs, because it is positively true that the paste will not act upon a pulp while it is in this state. The only remedy we know of, is time. We have tried various means to complete the destruction of the pulp, after failing in the first application of the paste, but all to no purpose. We have always been obliged to wait upon time. At this point, time will do more than we; say from three days to three weeks is required. When the pulp has lost its peculiar irritability, which was excited by the first application of the paste, it can be applied again with impunity, without the fear of exciting pain. The pulp does not regain the same vitality as when it was in original health. It is necessary to apply sufficient paste to effect the destruction of the vitality of the pulp, if possible; and yet not sufficient to destroy the tooth and the gums. It may be asked, how shall we know how much, or what quantity shall we apply to a pulp? We will answer in this way:—In the absence of the impossibility of arriving at it by exact proportions by weight, prepare the following receipt:—

R. Arsenious Acid, gr. xxx.

Sulph. Morphia, gr. xx.

M. Creasote, q. s.

This formula originated with us in its present form over twenty years ago, and it has been published several times; but, for fear of its not being at the hands of every one who may read this article, we will give in brief the manner of preparing it. First triturate the arsenic in a small glazed mortar for three hours; we say hours, because if we say until it is impalpable, every one will cease grinding it long before it is sufficiently fine, during which time, it must be kept moist with creasote. After this preliminary, add the morphia, with additional creasote, and continue rubbing for half an hour, using sufficient creasote to obtain a paste of about the consistency of thick cream, when it is fit for use. Now moisten a pledget of raw cotton with the paste, about the size of a small pin's head, for a small tooth, and of a large pin's head for a large tooth, and we will have about as near the quantity for use as we can describe. The longer it stands after it is made, the better it is for use.

We wish it distinctly understood here, that we do not in this paper object to other dentists' methods of treating nerves, but we can, without reserve, assert that we cannot succeed by any other means that we have ever tried, with any degree of satisfaction to our patients. After the cavity of decay has been prepared for the paste, we place our little pellet in the cavity, and secure it with raw cotton. When it is between the teeth, we let the last portion of cotton rest against the adjoining tooth; but if we have no support from another tooth to keep the plug of cotton in securely, we tie a thread around the tooth, and over the cotton, to hold it in the cavity. A great many dentists use bees-wax to secure the paste. We cannot use it, because it excites pain to place it in the cavity, and it forces the paste up around the margins of the cavity much more than the cotton. Some, again, use cotton, saturated with gum sandrac. We never found it to be of any advantage. We sometimes use softened bees-wax in buccal cavities, where we could not succeed in making sufficient excavation to retain the cotton. As a general rule, we now let the paste remain for thirty-six or forty-eight hours. It allows time for the paste to permeate the pulp to a greater depth than is usual, in leaving it only over night, or twenty-four hours, especially in molar teeth, or when we cannot get a very free exposure of the pulp, unless it be in patients of flimsy texture and yielding temperaments; in such case, twenty-four hours is long enough. If the paste be left in a tooth for a long time, the tooth will take on a reddish appearance; perhaps on account of the arsenic decomposing the blood corpuscles, and letting the hematosin be absorbed by the dentinal tubuli. It is true that the blood does not form a clot when it is acted upon by arsenious acid. For this reason we always open a pulp cavity after we think the paste has been in long enough to destroy the pulp's

vitality, in order that the blood may escape from the cavity. Sometimes, when the vitality of the pulp is not destroyed, the tooth will present a reddened appearance. Whether the pulp be dead or not, and the tooth is red, we open the pulp cavity freely, and apply no more paste until the tooth has regained its normal hue; when, if any of the pulp be actually dead, we remove the deadened portion, and in a short time the tooth will return to its natural color.

It will be observed by this, that a reddened appearance of the tooth may be looked for, whether the pulp be destroyed or not, and this is one of the objections to its use. But we positively assert that the reddened appearance may always be gotten rid of, if the tooth into the pulp cavity be properly opened. We have seen a tooth turn red without having had arsenic applied. It is not always true that we can remove all the pulp that is desirable the first time we examine a case after the arsenic has been in for a reasonable length of time, because the deadened fragments will not break or tear away without exciting much pain. In such case, we wait for a few days, and examine the case again. If we find that the part which we touch with the instrument is actually tender, we apply a small portion of paste; but if we find that we can throw the fragment about in the cavity from side to side, and it excites no pain, except when we pull at it, we wait a few days longer, until the living extremity is ready to give up the dead fragment. When the dead fragment is finally removed, and we are as far down the root as we wish, and there is no fresh blood thrown off, we can venture to plug the tooth; but if there be fresh bleeding, we apply a small portion of creasote or chloride of zinc on cotton, or a thread passed down the root, leaving it for one or two days, until we can wash and scrape out the cavity, without exciting bleeding, when we consider the case ready for plugging. If we have gone down the root as far as we can with a probe as finely dressed as possible to make any effort with, we consider it far enough. Whether it be one-third of the depth of the root, or two-thirds, or three-fourths, it depends upon the kind of tooth or root. We can and must remove more of the pulp in the cylindrical roots than the flat roots. It is necessary to remove more of the pulp out of the inferior bicuspsids than any other teeth, and the success of the treatment is less certain. It very frequently happens, that when the dead fragment is given up by the living portion, that however small the remnant left may be, there is still left an ulcerative surface. In such case, we treat with creasote until it disappears.

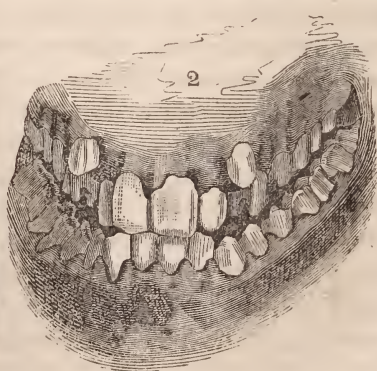
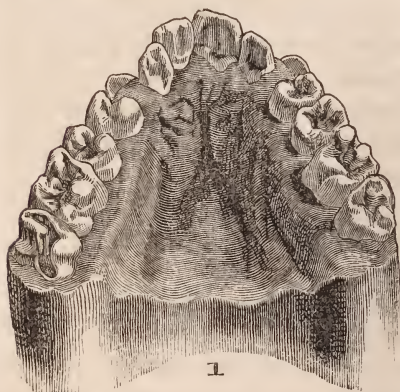
[To be continued.]

A CASE OF IRREGULARITY.

EDS. OF "THE DENTAL COSMOS."—*Gent'n*.:—In accordance with your kind solicitation, I herewith send you the models, and all the efficient apparatus employed by me in the regulating case which I presented to the late Convention at Niagara Falls.

It is a case presenting a combination of difficulties—not merely one of great irregularity of teeth among themselves, but this was accompanied by a jaw so contracted as to allow the entire circle of the upper teeth to shut inside the teeth of the under jaw—so changing the features, as to make the Miss of *fifteen* wear the aspect of the matron of seventy. While the upper jaw was unnaturally small, the under jaw was unusually large. I do not intend to represent this as a case presenting the extreme of all the difficulties that the dentist may have to encounter in the different cases of teeth and jaws which may be presented for his regulating operations; and yet, in a practice of more than twenty years, in which the regulating of teeth has constituted a prominent feature, I have met none more forcibly reminding me of the obstacle which Archimedes declared to be the only one that prevented him from moving the world by the employment of mechanical forces, viz: "a place upon which to rest his lever," and "a place upon which to stand."

This case came under my treatment about five years ago, when I brought forward the two frontal incisors by the use of the inclined plane and head-straps.* It was then neglected till the Spring of 1858, when I made some further efforts to expand the jaw itself; but these were at length discontinued, and the case came finally into my hands in March last, and has now been under treatment for about five months. Fig. 1 shows the con-



dition of the teeth and jaw at that time, and Fig. 2 the articulation or bite at the same time.

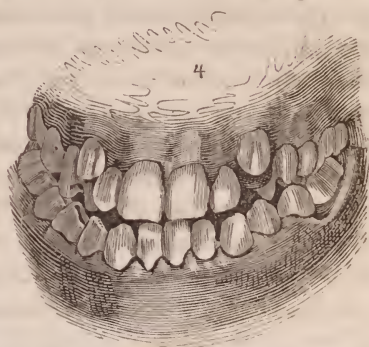
*See *American Journal of Dental Science*, vol. v, page 147. Old Series.

Of the five months which have been thus occupied to bring it to the state in which it is seen in Fig. 3, showing the present shape of the jaw,



3.

and the relative position of the teeth, and in Fig. 4, showing the present articulation or bite of the two jaws, at least one-half of the time was lost in wholly fruitless, not to say vexatious experiments. My first attempt was to effect my object with *plates*, and by various fixtures and appurtenances attached thereunto.



With these I made some progress, but the great difficulty was, that just so soon as the teeth and jaw began to move, the fitting of the plates became correspondingly imperfect, both in respect to the clasps, and its adjustment to the roof of the mouth; and during the two, or two and a half months referred to, I made no less than six different plates, to keep pace with the progress, which was by no means too great. And I take occasion here to say that, in my judgment, *plates*, as the base work of any fixture whatever, in cases where the object is to expand the jaw itself, are wholly inadmissible. I do not say that it would be *impossible* to effect the object in this way, but while they are very inefficient, they require as much tending as an infant, and, at that, will need renewing at least once a week. No one man, by devoting his whole time to this kind of apparatus, could possibly have under treatment more than five patients at a time; and, at that, his own nerves and his patients' gums would be alike in a state of constant irritation. They are neither capable of self-adjustment, nor of being adjusted, unless re-swaged. Suppose the lateral spreading of the jaw is one line, it will readily be seen that the clasps

must be drawn off from the teeth on one side or the other, or from both. It was suggested at the Convention that "this would be remedied by straightening the plate."

But it must be seen, at a single glance, that this involves two serious difficulties.

1st. It leaves a large space under the centre of the plate.

2d. It throws the clasps out of their original position, so that, *as a general rule*, the plate cannot be returned without great irritation to the mouth.

Suppose, when the plate is held in its natural position, the clasps are on a horizontal plane. It will readily be seen that if the plate is straightened, or flattened, with the view to increase the distance between the clasps, that the extremes of the clasps will be turned upward—an effect which does not admit of remedy if they are firmly soldered to a plate.

In short, I would say that, whoever claims that cases like the one above alluded to, can be regulated with any degree of dispatch, or comfort, either to the operator or patient, by the use of *plates*, as the basis of his other appliances, either *knows a great deal more, or a great deal less* than I do about their tendencies and effects. Let any one who is disposed to *theorize* in this direction, undertake a case essentially like the one under consideration; let him, as he will be obliged to do, if he make any progress, *renew the plate every week*, and *readjust daily* all the various appliances,—springs, screws, levers, tubes for holding and directing wooden bars, etc., etc.,—and if his fancy for this kind of experimenting is not supplanted by weariness or disgust, he must be a man of both patience and leisure.

When, after a continued series of vexatious *failures* with *plates*, for full two months, in this very case, and when upon the point of abandoning it as beyond the limit of my patience and leisure, not to say skill, I conceived a plan by which I might dispense entirely with plates, and supply their place with a *simple, governable, and almost self-regulating fixture*—one which could be managed by the patient, safely and efficiently, for from one to three weeks at a time, without any attention on the part of the operator, and then requiring not more than from *ten to thirty minutes*—my professional brethren will pardon me for having felt like exclaiming, in the language of that same *old Syracusean* whom I have already quoted, "Eureka! Eureka!"

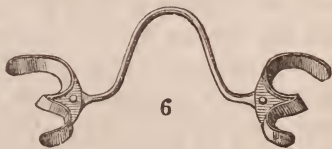
My first object had been, and still was, to expand or spread the jaw *laterally*—the upper jaw being, at a point opposite the bicuspid, nearly half an inch too narrow to articulate properly with the corresponding teeth of the lower jaw.

To accomplish this, the first fixture I employed is the one seen in Fig. 5. This consists of double clasps, (one for each bicuspid,) and both soldered to a cross-bar, bent so as nearly as possible to fit the arch of the jaw. This was fitted in all respects as clasps are fitted to a plate, only substituting the bar (made of silver wire, No. 17,) for the plate. This was made to fit snugly and firmly, and placed upon the teeth, with directions that the patient return the next day.



On examining it at the second visit, I found it much more easily displaced and replaced than on the day previous, and at this time, I straightened the bar so as to carry the clasps about a line farther apart. This required some springing of the bar to replace the fixture, but I returned it, and left it in this way.

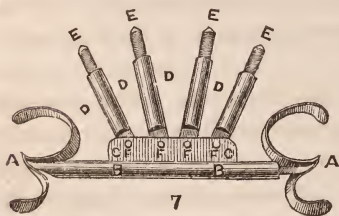
My patient was then absent for two days. When she returned, she said her teeth were quite sore the day previous, but were then quite free from soreness, unless pressed upon. In this way the case was managed for some three weeks; every day or two straightening the bar, as the teeth yielded, and bending the end of the bar near the clasps, so as to keep them upon the same plane as when originally made. This fixture worked very well and made fine progress, and the only draw-back seemed to be that *it was too constrained* in its action, and was inclined to irritate the gums. It then occurred to me that this difficulty might be overcome by attaching the clasps to the bar differently, by letting the attachment be a hinge joint, that should, indeed, have some freedom of motion in every direction; and accordingly I substituted for the first, the fixture seen in Fig. 6. This consists of the double clasps, as described above, to which



was soldered semicircular flat pieces, for the double purpose of receiving a pivot, and as a protection to the gum about the teeth. The end of the bar is then flattened, or an eye soldered on to it, (which is better,) and attached to the flat pieces on the clasps by a firm rivet. If it is desirable to move both bicuspids equally, and it is found they move with equal pressure, this rivet should, of course, be placed so as to bear directly midway between them. It will readily be seen that this is a fixture which will perfectly adjust itself to both teeth at the same time. The pressure against the teeth with this appliance is regulated, as in the first case, by periodically straightening the bar. I had the satisfaction of finding, after this fixture was fully adjusted, and fairly in operation, that it met fully every indication that could be expected, or realized from any one fixture.

I saw my patient less and less frequently, (she having very soon learned to bend the bar herself,) for about six weeks, when I decided that the jaw, *laterally*, was sufficiently spread. But, notwithstanding I had accomplished one portion of the operation to my perfect satisfaction, I had another part yet to perform still more formidable. I must not only hold the teeth and jaw, already moved, where they were, but to find some means of spreading the entire *front circle*, not merely to make room for the teeth within the circle, but also to secure a proper articulation; for it will be seen by reference to the cut that only the frontal incisors were anywhere near their proper places.

At this point, new and unexpected difficulties arose. I had already learned, to my great annoyance, that *plates* were inapplicable, while the jaw itself was undergoing changes; but now this had been accomplished, and I only wished to use a plate as a stationary basis against which to push, or peg. I had no doubt, but by fitting a large plate accurately to the mouth at this stage of the operation, I could make it a firm basis of my future movements. But in this I found myself greatly mistaken; for, after having taken the utmost pains to make and secure a plate in the most perfect manner, I found, at the end of three or four weeks, that I had completely thrown away my time, and lost much of the good effect of my former operations, so much, that I was obliged for a while to return to the former fixture for spreading the jaw. This was the darkest period I saw during the whole progress of the case, and I was so completely discouraged, that could I have found the least apology, I would most gladly have abandoned it. But no apology could I find. The parents were exceedingly solicitous to have me go on, and the young lady herself had shown that degree of perseverance, faithfulness, and courage, that made me ashamed to think of retreat. Without troubling your readers with any detailed account of the various attachments and fixtures which I tried in connection with the plate for this purpose, I simply say, that after wholly exhausting both my ingenuity and patience in daily trials with plates for several weeks, I assigned them a place in the scrap drawer and pronounced the whole thing a dead failure.



My next stratagem was the fixture represented in Fig. 7. This consists, as in the former pieces, of double clasps, (*a a*) taking the places of those on the bent bar. These clasps are connected by a straight bar, which is made nearly the whole length of tubular wire. This tube has a screw cut in its inside the whole length, and is soldered to one pair of

the double clasps. The other pair of clasps are soldered to a wire which screws into this tube. The object being to lengthen or shorten the bar at will. The clasps being nearly fitted to the teeth, and the bar so adjusted as to admit of their setting easy, we have the starting point. I will incidentally say here, that I am by no means certain, but that this fixture thus far described, (attaching the clasps as in Fig. 6.,) might, with advantage, be substituted for the bent bar heretofore described, for getting *lateral expansion* in all cases.

To complete this fixture for the purpose of moving forward the front teeth, I next soldered a flat piece (*c c*) of sufficient width for hinge joints to connect with it the tubes (*d d d d*) which are to receive the spurs, (*e e e e*). These tubes, which have a screw cut on the inside, are attached to the flat piece on the bar, by first soldering to the end of each an eye, (*f f f f*) consisting of a flat round piece to receive the rivet, holding it to the main bar. Into these tubes are screwed the spurs, which are to bear and press against the teeth to be moved. These spurs are kept in place against the teeth by making a slight depression in the teeth themselves, with such a drill as is used for drilling steel or other metals.

When the apparatus is thus prepared, the clasps are adjusted firmly, and these spurs are brought forward, and the points inserted into the depression in the teeth—each one being so adjusted by its screw in the tube, as to exert a gentle pressure against the tooth. As to how many of these spurs shall at first be put on, must depend upon the number of teeth to be moved, and, of course, upon the judgment of the operator.

In the case under consideration, I only used two at first, and these were directed against the two frontal incisors. After these were carried to a desirable position, I added two more, one against each lateral incisor. Again, the *direction* of these spurs must be closely looked after. This is easily managed by changing the attachment to the bar.

In short, with the case before you, carefully considering what has been done, and what is to be accomplished, you have in this apparatus (I allude specially to the cross-bar and clasps) the basis to which to attach any other appliance you may please. If you wish to carry forward but a single tooth, use a single spur. If you wish to carry *backward* a tooth, attach your spur or arm by a clasp to it, and shorten the screw from day to day. If you wish to do both at the same time, make your attachments and movements accordingly.

My experience is, that this cross-bar encumbers the mouth less than any other fixture that can be rendered at all available as the basis of levers, springs, or any other appliance for the purpose of moving teeth, and I shall adopt it as the foundation of all other fixtures in my future operations for regulating teeth.

The young lady for whom I regulated the case under consideration, was about sixteen years of age when I last commenced the operations, and I am now satisfied, that had I commenced with the apparatus she is now wearing, I could have accomplished all that has been accomplished in less than three months. After I get the teeth in their proper relative position, I propose to swage a cap, embracing eight or ten of the frontal teeth, of thin platina, and covering this with white enamel, so that it would be difficult to distinguish it from the natural teeth. This cap may be worn a longer or shorter time, as the case may demand, till there is no disposition for any of the teeth to change from the places to which they have been carried by the previous operation.

The primary objects to be kept in view in deciding upon fixtures for regulating the teeth, are, to choose such means as shall exert firm and steady pressure, that require the least possible alteration, that their periodical adjustment shall be simple and easy, and, if possible, such as can be managed by the patient. Anything short of such an arrangement requires an amount of time, and involves a perplexity on the part of the operator, which must constrain him either to discard such cases, or to charge such a price as would, in most instances, be beyond the means of the patient. If the above fixtures have any special merit, it consists in their extreme simplicity, the facility with which they are adjusted to meet the daily movements of the teeth and jaws, and in the fact that the *direction of the pressure* is, with the greatest ease, changed and controlled with the least possible trouble to the operator. It will be seen by reference to Fig. 3, that the action of the spurs upon the teeth is at right angles with the teeth to be moved, whilst their backward pressure tends to carry backward the teeth to which the bar is attached, making the combined action precisely what is wanted, viz: to elongate the jaw, and at the same time, by lengthening the bar by means of the screw, lateral pressure is secured, and may be kept up to any desired extent. Now it will readily be seen that either of these changes may be made by any intelligent patient; but if the dentist prefers to take the entire charge of it himself, a few minutes only at a time will be required to renew the adjustment of the fixture. There are several questions, such as the *kind of pressure* best adapted to move the teeth, the best method of making inclined planes, head straps, etc., which I intended to discuss, but the length of my article admonishes me to leave them for some future occasion.

Before closing this article, I wish to make a few general suggestions to the young practitioner, which may be of service to him in his management of this very interesting, though often perplexing class of dental operations.

1st. Never undertake to regulate teeth until the first set of teeth are

shed, and the second set are in their place. I do not mean by this, that we should never attempt to *prevent* irregularity by timely extraction, and perhaps by other means.

2d. When a case is presented, and the proper time has arrived for commencing operations, let the inquiries be—"Does the patient, or the parents, or the guardians, fully appreciate the nature and importance of the operation, so much so, as to place the patient *fully at your control*, and cheerfully to remunerate you for your time and skill?" If both these interrogatories are answered affirmatively, then you may safely undertake the task; but if either are even doubtful, and especially the former, you had better dismiss the case.

3d. If you decide to commence the operation, take accurate impressions of both jaws, and of the two in combination, or an articulating impression, and, before you see your patient again, or prepare any fixtures, *study them carefully and thoroughly*, and come to definite and distinct conclusions before you make the first move that is seen by the patient.

4th. Set the *price*, if you can, before you commence, and require at least one-half in advance, (which often secures a punctuality which nothing else will,) and be sure to set it high enough, (and there is little danger of your getting it too high,) and then be faithful to the last degree, whether you make or lose money. *Never curtail any effort for fear your arrangement may not prove profitable.*

5th. *Consider well the constitution and the health of the patient.* If the constitution is naturally feeble, and especially if the health is bad, better by far run the risk of confirmed irregularity than undertake any operation of this kind of much magnitude.

Nor is there generally much risk in deferring such operations for one, or two, or even five years, unless the patient is twenty or more years of age, when the application is made. I would have no hesitation in commencing an operation such as I have been describing, at the age of twenty, or even twenty-five, if the patient was of vigorous constitution and in good health. It might require a greater length of time to produce the same result, but the intelligence and matured judgment of the patient would do much toward compensating for any drawback from age.

6th. *Never be discouraged*, my young friend, at a failure. I have drawn out this article to a degree of prolixity otherwise wholly unpardonable, expressly to show you that twenty years' experience cannot exonerate us from disappointments and failures; and also to show you that these may be overcome by close study and patience. Because you have been successful in one case of regulating, it does not follow that you are prepared to start off at railroad speed on the next. Every case is a new one, and however well you may be posted in general principles, you must

study this particular one as closely as if you were in fact a beginner. No field in dentistry presents greater scope for the exercise of close study, the correct applications of principles and sound judgment, and none, if successfully cultivated, yields a richer reward in the satisfaction it brings to the operator.

One word to my "Dear Messrs. Editors" of "THE DENTAL COSMOS," and I am done. The objects, as set forth in your first number, I heartily approve. The profession needs a *monthly*, if not a *weekly* paper to keep pace with the rapid strides it is now making. It needs an *impartial* journal—one which will publish a *good* article from an enemy, and discard the poor or unworthy article from a *friend*—one which despises the mere friend or clique service, and stoops not to inquire whether the contributor is or is not "one of our set." The editors of a scientific journal should never *seek* valedictory addresses for publication, because they are known to contain some "awful cut" upon some one they do not happen to like, or because they flatter their own personal vanity. While they have just as good a right as other people to their prejudices and partialities, they should seek some means independent of their *journal*, of assisting or bringing into notice their *special friends*, or even *dear relations*. In short, they should act wholly independent of all influences, except the love of that truth and science of which their journal is the professed exponent. So long as "THE DENTAL COSMOS" shall present its present bold front, and adhere to the rules which it has laid down for its own guidance, just so long will it receive my hearty sympathy, and, feeble though it may be, my *cordial* co-operation.

A. WESTCOTT.

SYRACUSE, August, 1859.

EXTRACTION OF DECIDUOUS TEETH TO PREVENT IRREGULARITIES.

MESSRS. EDITORS:—

After what has already been written in relation to the premature extraction of the deciduous teeth, by one of your able corps, it would seem that nothing more need be said upon this subject. But having attended the recent Convention of Dentists at Niagara Falls, and being somewhat surprised at the trivial manner in which a subject of so great importance was treated, I feel compelled to utter my protest against the indiscriminate use of a means, to correct an evil, which, if made use of by unskillful hands, is apt to produce deformity instead of preventing it.

There is a principle in obstetric practice which has passed into an axiom, namely, that "meddlesome midwifery is bad." Would it not be well for humanity, could we establish the same axiom in regard to *meddlesome Dentistry*? In favor of which necessity, need I adduce any greater argu-

ment than the regularity of the teeth of the aborigines, and of the poorer classes of men who cannot boast of their *family dentist*, and, on the other hand, of the irregularity of the teeth of the wealthy and the noble born, among whom contracted jaws have become hereditary?

Lest I should appear to reflect discredit on a profession, which I am proud to say, is rapidly outstripping all other sciences, I will attempt an explanation. A case was presented for the consideration of the Convention, in which the four inferior incisors were *half* erupted, occupying a place on the inside of the deciduous incisor teeth, which were all firm in their places. The gentleman, presenting the case, stated that he had removed the temporary teeth, in order to allow the permanent ones to take their places. His course was approved of by several operators of extensive reputation, and, I regret to say, was condemned by no one. Those who endorsed the practice did not appear to have sufficient faith in dame Nature's efforts, to enable them to hope that, by the time the other *half* was developed, that the temporary teeth would be thrown off or rendered so loose as to strongly indicate their removal.

When we consider that irregular dentures are the exception to the rule, and that notwithstanding the crowded position the permanent teeth occupy before eruption, they nearly always become regular, if let alone. We ought to discountenance any operation that might in the least damage the fair fame of our profession, or give unbounded liberty to the uneducated. Many operators have adopted as a rule in practice, non-interference with the deciduous teeth, except in those cases where suppuration has set in, and is endangering the surrounding structures, unless to arrest decay, and fill any cavities that may present themselves.

It is, undoubtedly, good practice to preserve in position, as long as required, those natural wedges which not only serve their purpose as masticators, but assist in the development of the jaw by their mechanical force, as well as in supplying, by their own disintegration, some of the elements, which, we must confess, our present mode of living does not afford in sufficient quantity. The pabulum from which the new structure is developed must not necessarily be derived from new material, but the old tissues having been dissolved, and carried again into the circulation, will reconstitute a part of similar structures.

I do not wish to be considered one who is disposed to fold his arms in indolent expectancy, but while I would not interfere with the efforts of nature, I would urge upon every one the full performance of his duty in the production of appliances to aid nature in her arduous task. J. L. S.

CHAMBERSBURG, August 15th, 1859.

The above paper deserves consideration for more reasons than one. It goes to show that merely talking about an important feature in practice,

before a convention, is not the proper way to decide upon a system of practice which requires the proper education of the practitioner. When we say proper education, we do not mean the cunning tricks of hand-craft, or secrets of the workshop, which the apprentice is bound to keep as the secrets of his master; we mean the physiological and pathological laws which underlie the greater portion of the operations and manipulations which the dentist is called upon to perform; a mechanic may learn to do his work well by merely being shown how, and doing the same things over and over to get his hand in, without understanding the why and wherefore. We know of a great many dentists who have become experts in performing operations in the manner named above, by doing operations over and over again, to the ruin, in many ways, of their patients' comfort for life. This paper goes to show again, that the length of time a dentist may practice, does not educate him in his profession, nor does it entitle him to the right of association, or his opinion to respect, or as authority. It shows that there is no proper test, but that of examination upon such portions of science as belong to the full development and explanation of his art. If men cannot understand how it is possible for them to be wrong, because they have erred so long, a society or convention of properly qualified persons ought to appoint a committee to test and prove, by well directed experiments, a certain line of practice, and, he who wilfully violates that rule, because his father had done so before him, the patient so injured, should be supported in a prosecution against the practitioner for mal-practice.

We have this day commenced to regulate a set of teeth for a beautiful child, twelve years of age, where the lateral incisors are hard against the bicusps, on account of the extraction, three or four years ago, of the canine teeth of the first set. The second canines are making their appearance high up on the outside of the arch. The operator in this case boasts that he is not afraid to extract a tooth, and says that there is not half enough extracted. His father was a dentist before him; and what has he bequeathed to him? No one, no matter how long he has practiced, or how many generations have preceded him in practice, has a right to mutilate the features of an innocent child.

J. D. W.

ON TEMPERING EXCAVATORS.

BY ABR. ROBERTSON, D. D. S., M. D.

To fill teeth well, it is necessary that the cavities to be filled should be well prepared. In order to prepare cavities well, it is essential to have fine cutting and well-tempered excavators, for the comfort of our patients, as well as our own satisfaction. While operating, very much depends on whether we have, or have not, good and *sharp* instruments; and no instrument can carry a fine edge in operating on the teeth, unless it is

finely tempered. Our reputation deservedly depends on the success of our operations chiefly; but still very materially, and no less deservedly on the ease and nicety with which we operate. No one is excusable for any avoidable roughness in any operation. Our general success in life, and our consequent ability to make ourselves useful to our fellow-men, depends mostly on our reputation; therefore, a knowledge of so small a matter as how to give the best cutting temper to a very minute piece of steel, is a very important matter to every practising dentist, and may be especially so to the young practitioner. I therefore propose to describe what has proved to me a most satisfactory method of tempering that kind of instrument, as it makes the hardest, keenest, and strongest edge of any method I have ever seen tried, besides being the simplest and easiest way of tempering that I have ever found.

I do not claim any originality in the matter, unless it may be in its application to our particular use; and I do not now remember where, or of whom I learned it, and, therefore, to my regret, cannot "give the credit to whom the credit is due." I think I learned it of some artisan, but of what craft or trade I do not now know; but this I do well know, I have practiced it for several years past with entire satisfaction.

The process consists simply in heating the instrument just as if it were to be tempered in any other manner, when its edge is struck quickly into a piece of lead with whatever force the heated shank of the instrument will bear without being bent.

The advantages of this method over others are, that you harden only the edge of your instrument, thus avoiding the great liability of such instruments, tempered in any other way, to break in the shank or bend the instrument; there is no necessity to "draw the temper" after hardening; and also, it makes a firmer, harder, and finer edge—hard enough to cut enamel and not turn! This, of course, is said on the presumption that the steel to be tempered is of a good quality, and has not been improperly heated.

If any prefer having the shanks of their excavators tempered, as well as their blades, it can very prettily be done by heating them as high up as it is desirable, to harden them, and plunge them into water, oil, or other material; polish, and then hold the edge of the instrument against the shank of a file, or any other piece of cold metal, while the temper in the staff or shank is drawn over a spirit lamp. In this way, with proper care, the temper can be drawn to quite a low blue, almost to the very edge of the instrument, but without affecting the edge.

WHEELING, VA., August 12, 1859.

The latter method of tempering instruments we constantly practice, and described it in the *Dental News Letter* some years ago; but the first method above-named is new to us. We will try it.

J. D. W.

ALVEOLAR ABSCESS ARISING FROM EXOSTOSIS.

Patient, aged about thirty, presented himself for advice in regard to a fistulous opening upon the lower part of his cheek, right side, and opposite the roots of the first molar tooth. Some two years previously, according to his statement, he first felt a peculiar sensation in the tooth—often a dull grumbling pain, but not giving much trouble. In the course of nine or ten months, the pain became more acute, and, at times, assumed the neuralgic form, giving a great deal of annoyance. About this time, the tooth became very sore to the touch, and gave rise to an abscess, which opened upon the outside of the cheek. The patient sought medical advice, and was told that the tooth must be extracted; but the physician, after several fruitless attempts at its removal, said the tooth could not be extracted without fracturing the jaw.

When I saw the patient, this fistulous opening had been discharging, more or less, for a year, and a small probe could easily be passed from the outside orifice, and be made to strike the anterior fang. After an unsuccessful attempt at extraction by the ordinary way, I split the tooth, and then removed the posterior fang with great ease; but, on trying the anterior, it was tight, and did not move in the least. A portion of the alveolar process was removed, and the fang extracted, when the lower part (the apex) was found exostosed about the size of a pea. This tooth was only very slightly decayed, and no exposure of nerve.

The above case, I think, is interesting, and goes to show that exostosis may produce alveolar abscess. Dental authors have treated this subject very superficially; in fact, the great majority of them are silent upon it. Mr. Thomas Bell, in his "Anatomy, Physiology, and Diseases of the Teeth," when treating of exostosis, alludes to it incidentally, and says: "the continued irritation [of exostosis] occasions thickening of the periosteum, and afterwards suppuration, and the case becomes one of simple alveolar abscess." This seems to be the only true pathological solution. The slight irritation of the periosteum of the fang, which gave rise to the ossific deposit, gradually increased, and eventually involved its death, producing the abscess as a sequence.

J. P. H. BROWN.

ATLANTA, GA.

OBITUARY.

By a letter received from Picton, Canada West, we learn, with sincere regret, of the sudden decease of Dr. David J. Stickney, a member of the graduating class of last session of P. D. College. He died July 7th, of hemorrhage of the lungs, after an illness of five weeks. He was a young man, of unusually agreeable and prepossessing manners, which endeared him to all with whom he associated. As an operator, he had but few superiors, and had his life been spared, he, no doubt, would have been an honor to the profession of his choice.

C. N. P.

PROCEEDINGS OF DENTAL SOCIETIES.

THE NATIONAL DELEGATE CONVENTION.

Agreeable to instructions, the delegates sent by the Dental Societies and Dental Colleges in the United States to the National Dental Convention, met at 8 o'clock, on Wednesday evening, Aug. 3d, 1859, at Niagara Falls, to determine upon the expediency of forming a National Dental Association upon a representative basis.

On motion of Dr. H. J. McKELLOPS, of St. Louis, Dr. W. W. ALLPORT, of Chicago, was elected Chairman of the Convention, and Dr. J. TAFT, of Cincinnati, Secretary.

In entering upon the discharge of his duties, the chairman stated the object of the meeting, and remarked that whilst it was a matter of regret that the number of societies in the country was so limited, it was gratifying to find such a fair representation present from the existing associations. The secretary was then requested to read the memorial that had induced this movement.

Memorial.—The undersigned practitioners of denistry, believing that a National Association of Dentists, composed of delegates from State, county, and local societies, and Dental Colleges, would be calculated to promote the best interests of the profession, respectfully suggest to the Dental Societies and Colleges throughout the country, the propriety of electing delegates to meet in Convention, at the Falls of Niagara, on the first Wednesday of August, 1859, for the purpose of forming, if the assembled delegates shall deem it expedient, a National Association upon a representative basis.

After the memorial had been read, a committee of three was appointed by the chair, to examine the credentials of the delegates present. Dr. J. L. Suesserott, of Chambersburg, Pa., Dr. Wm. M. Wright, of Pittsburg, and Dr. Jas. Taylor, of Cincinnati, constituted the committee. The credentials having been examined and found satisfactory, the committee reported the following list of delegates, as representatives from the institutions named:

Cincinnati Dental Association—Drs. C. H. James, and J. G. Cameron.

Ohio College of Dental Surgery—Dr. Jas. Taylor.

Mississippi Valley Association—Drs. S. L. Hamlin, and H. McCullom.

Ohio Dental College Association—Drs. H. A. Smith, Jos. Richardson, J. T. Toland, J. Taft, G. W. Keely, Geo. Watt, and E. Taylor.

Pennsylvania College of Dental Surgery—Dr. William Calvert.

Western Dental Association—Drs. W. Perkins, and W. W. Allport.

Pennsylvania Association Dental Surgeons—Drs. J. H. McQuillen, T. L. Buckingham, J. L. Suesserott, Geo. T. Barker, and B. M. Gildea.

Indiana State Dental Association—Drs. J. F. Johnston, A. M. Moore, G. P. C. Hunt.

St. Louis Dental Association—Drs. H. J. McKellops, and Isaiah Forbes.

Pittsburg Dental Association—Drs. W. M. Wright, and R. Vandervort.

The report was accepted and committee discharged.

The following was then offered by Dr. J. H. McQuillen, of Philadelphia :

Resolved, That a committee, composed of one member from each delegation present, be appointed to draft a Constitution, and submit the same to this Convention, its final adoption to be left until the next annual meeting.

Several amendments were offered, but the original resolution prevailed, with a slight modification, moved by Dr. J. F. Johnston, of Indiana, that the committee should consist of three members.

Drs. J. H. McQuillen, Wm. M. Wright, of Pittsburg, and Jos. Richardson, of Cincinnati, were appointed the committee.

On motion, the meeting adjourned to assemble at 4 o'clock, on the following afternoon.

At the adjourned meeting held the next day, the Committee on Constitution offered the following report :

Mr. Chairman and Gentlemen:—The committee appointed by this Convention to draft a Constitution, beg leave to report that they have attended to the duty assigned them, and would respectfully offer the following plan of organization, trusting that its imperfections and shortcomings may be remedied by *your reflections* and the *judgment of those* who shall participate in the final adoption of *a constitution* for the proposed association. A due regard for our own reputation, as well as a just appreciation of the rights of others, make it obligatory that we should state, and desire the same to be placed upon record, that the plan of organization we submit to you, is based upon a constitution that was framed by some of the brightest and best minds of our country. We refer to the American Medical Association.

PLAN OF ORGANIZATION.*

I.—NAME.

This organization shall be known by the name, style, and title of the *American Dental Association*.

II.—OBJECTS.

The objects of this Association shall be, to cultivate the science and art of dentistry, and all its collateral branches, to elevate and sustain the professional character of dentists, to promote among them mutual

* The Committee, after carefully re-examining the plan of organization, and making but a slight modification, desiring that ample time may be afforded the profession to consider and remedy its defects, submit it at the earliest period practicable to that ordeal.

improvement, social intercourse, and good feeling, and to collectively represent and have cognizance of the common interests of the dental profession in every part of the United States.

III.—MEMBERS.

The members of this Association shall be exclusively practitioners of dentistry, holding their appointment to membership, either as *delegates* from local institutions, as *members by invitation*, or as *permanent members*.

The delegates shall receive their appointment from permanently organized dental societies and dental colleges in the Union, each delegate holding his appointment for one year, and until another is appointed to succeed him.

Each local society shall be entitled to send to the Association one *delegate* for every *five* of its active members, and the faculty of each college to send one of its members as a representative.

The members by invitation shall be practitioners of *reputable standing*, from sections of the country not otherwise represented at the meeting. They shall receive their appointment by invitation of the meeting after an introduction from any of the members present.

The permanent members shall consist of all those who have served in the capacity of delegates, and of such other members as may receive their appointment by unanimous vote.

Each delegate, member by invitation, and permanent member, shall be entitled to debate and vote on all questions agitated in the associations, and be eligible to any office in the gift of the Association.

To defray the expense of printing the *transactions*, and to meet other incidental expenses, the sum of dollars shall be assessed annually upon *all* the members present at meetings of the Association. The payment of this assessment shall be required of those in attendance previous to taking their seats, and participating in the business of the session.

No member who is not present at a meeting of the Association, shall be required to pay the annual assessment; but no such member shall be entitled to receive a copy of the printed *transactions*, unless he pay into the treasury a sum of not less than the amount paid by members in attendance.

Every member elect, prior to the permanent organization of the annual meeting, or before voting on any question after the meeting has been organized, must sign these regulations, inscribing his name in full, specifying in what capacity he attends, and, if a delegate, the title of the institution from which he has received his appointment.

No one shall be permitted to address the Association before giving his name and residence, which shall be distinctly announced from the chair.

IV.—MEETINGS.

The regular meetings of the Association shall be held annually, and commence on the third Tuesday in July. The place of meeting shall never be the same for any two years in succession, and shall be determined each year by vote of the Association.

V.—OFFICERS.

The officers of the Association shall be a President, two Vice Presidents, Corresponding Secretary, Recording Secretary, and a Treasurer. They shall be nominated by a special committee of one member from every State represented at the meeting, and shall be elected by vote on a general ticket. Each officer shall hold his appointment for one year, and until another is elected to succeed him.

The President shall preside at the meetings, and perform all the duties that custom, or parliamentary usage may require.

The Vice Presidents.—In the absence of the President, one of the Vice Presidents shall assume all the duties of the office; and, in the absence of these officers, a Chairman, *pro tem.* shall be appointed *viva voce*.

The Corresponding Secretary shall attend to the correspondence with the Association, and give due notice of the time and place of each annual meeting.

The Recording Secretary shall keep accurate minutes of the proceedings of the Association, preserve the archives and unpublished transactions, and attend to all other duties that appertain to the office.

The Treasurer shall have the immediate charge and management of the funds and property of the Association, and shall present a balanced account, duly authenticated, at every regular meeting, to the Committee of Publication.

VI.—STANDING COMMITTEES.

The following Standing Committees shall be organized at every annual meeting, to prepare, arrange, and expedite business for each ensuing year, and to carry into effect the orders of the Association not otherwise assigned, namely: a Committee of Arrangements, of Publication, on Prize Essays, on Scientific Investigation, on Dental Pathology and Surgery, on Mechanical Dentistry, and on Dental Education and Dental Literature.

The Committee of Arrangements shall be composed of five members, one of whom, if possible, shall reside in the place at which the Association is to hold its next ensuing annual meeting. They shall be required to procure suitable accommodations for the meeting; to verify and report upon the credentials of membership; to receive and announce all essays and memoirs voluntarily communicated, either by members of the Association, or by others through them; and to select and announce at the

earliest period practicable after their appointment, subjects for discussion at the succeeding annual meeting.

The Committee of Publication, of which the Secretaries and Treasurer must constitute a part, shall be authorized to employ a competent reporter, to furnish an accurate report of the proceedings of each meeting. They shall superintend the publication and distribution of such portions of the Transactions as the Association may direct. The five members of this committee shall annul, accredit, and authenticate the accounts of the Treasurer, and present a statement of the same in the annual report of the committee, which report shall specify the character and cost of the publications of the Association during the year, the number of copies still at the disposal of the meeting, and the funds on hand for further operations. The committee shall be instructed to print at the beginning of each volume of the *Transactions*, the following disclaimer, viz: *The American Dental Association*, although formally accepting and publishing the report of the various standing committees and essays read before the Association, holds itself wholly irresponsible for the opinions, theories, or criticism therein contained, except when so decided by special resolution.

The Committee on Prize Essays shall consist of five members. Two prizes, of dollars each, shall be awarded to the best two communications reported on favorably by the committee, and directed by the Association to be published.

The Committee on Scientific Investigation shall be composed of six members, to be divided into two sections; one on the Physiological and Microscopical Anatomy of the Teeth, and one on Chemistry in its relations to Dentistry. It shall be the duty of the different sections to institute, during the period of their appointment, a series of investigations and experiments in these departments, and present to the Association the result of their labors.

The Committee on Dental Pathology and Surgery, consisting of five members, shall have under consideration everything that appertains to pathological conditions of the teeth and adjacent tissues, and the remedial agencies embraced under the head of operative dentistry. All improvements in the latter department shall be thoroughly tested, and reported on before the Association by this committee.

The Committee on Mechanical Dentistry shall consist of five members, who shall receive and take cognizance of plans, improvements, and specimens in this department, that may be presented by persons desiring to bring them before the Association. The committee shall be authorized to reject those that they may deem unworthy of presentation.

The Committee on Dental Education and Dental Literature, consisting of five members, shall make annual reports on these important subjects.

The selection of the chairmen and members of the different committees, shall be referred to the nominating committee.

AMENDMENTS.

These articles may be altered and amended with the consent of three-fourths of the members present, at the next subsequent annual meeting to that at which such amendment or alteration may have been proposed.

In acknowledgment of having adopted the foregoing propositions, and of our willingness to abide by them, and use our endeavors to carry into effect the objects of this Association, as above set forth, we have hereunto set our names.

NAMES OF MEMBERS.	RESIDENCE.	INSTITUTIONS REPRESENTED.

THE ORDER OF BUSINESS.

The order of business at the annual meetings of the American Dental Association shall at all times be subjected to the vote of three-fourths of all the members in attendance; and, until permanently altered, except when for a time suspended, it shall be as follows, viz.:

1. The temporary organization of the meeting, preparatory to the election of officers.

2. The report of the committee of arrangements on the credentials of members, after the latter have registered their names and addresses, and the titles of the institutions which they represent.

3. The calling of the roll.

4. The election of officers.

5. The reading of minutes.

6. The reception of members not present at the opening of the meeting, and the reading of notes from absentees.

7. The reception of members by invitation.

8. The reading and consideration of the stated annual reports from the standing committees.

9. The reading of essays.

10. The discussion of topics selected for the session.

11. The selection of the next place of annual meeting.

12. The new appointments to fill the standing committees.

13. Resolutions introducing new business, and instructions to the permanent committees.

14. Unfinished and miscellaneous business.

15. Adjournment.

Committee. { J. H. McQUILLEN,
W. M. WRIGHT,
J. RICHARDSON.

After the report of the committee had been read, on motion of Dr. McKellops it was received by the Convention.

Dr. Jas. Taylor then moved that the report be recommitted, with instructions to mature and amend, if necessary, and publish it in the Dental Journals as early as next November. Adopted.

Dr. J. L. Seusserott offered the following resolutions, which were adopted:

Resolved, That this Association suggest to the dental practitioners residing in sections of the country where there are no local or State Societies, the propriety of forming such associations, and electing delegates to meet this Convention at its next session.

Resolved, That this Convention hold its next meeting in Washington City, on the last Tuesday in July, 1860, at 12 M.

Dr. Jas. Taylor was requested by the Chair to procure suitable accommodations for the next meeting.

On motion of Dr. J. Taft, it was resolved that five persons be appointed to prepare and read essays at the next meeting. Each person to select his own subject.

The Chair appointed Drs. Taft, McQuillen, Richardson, Watt, and Buckingham, to prepare essays.

On motion of Dr. Jas. Taylor, it was

Resolved, That the delegates to the Convention to be held in July next must be practitioners of Dental Surgery, and that each college be entitled to send one representative, and each association one delegate for every five members.

On motion, adjourned.—Ed.

AMERICAN DENTAL CONVENTION.

REPORTED BY GEO. T. BARKER, D. D. S.

FIRST DAY'S PROCEEDINGS.

NIAGARA FALLS, August 2d, 1859.

At the hour of 11 o'clock, the Convention was called to order by the President, Dr. Isaiah Forbes, of St. Louis.

MEMBERS PRESENT.

ALABAMA.—J. L. Lavender, Lafayette.

CONNECTICUT.—W. Potter, Norwich.

CANADA WEST.—E. V. N. Relyea, Bellville; J. L. Walter, St. Catharine's; C. S. Chittenden, Hamilton; A. C. Crysler, Clifton; W. W. White, Chatham.

DISTRICT OF COLUMBIA.—Mahlon Loomis, Washington.

DELAWARE.—W. G. A. Bonwill, Dover.

FLORIDA.—P. P. Lewis, Tallahassee.

GEORGIA.—B. B. Alfred, La Grange; F. Y. Clark, Savannah; D. S. Chase, Augusta.

INDIANA.—G. A. Wells, Indianapolis; George Lupton, Shelbyville.

ILLINOIS.—W. W. Allport, Chicago.

KENTUCKY.—J. L. Nourse, Cloverport; Daniel Dougherty, Bardstown; H. McCullum, Augusta.

MASSACHUSETTS.—W. P. Dillingham, E. T. Wilson, Abel Ball, W. R. Mayo, Boston; S. P. Miller, Worcester; George L. Cook, Milford; J. Fisk, D. B. Ingalls, Clinton; W. D. Sanborn, Haverhill.

MAINE.—L. B. Straw, Bangor; J. Mason, Saco.

MICHIGAN.—William Cahoon, Detroit; C. B. Porter, Ann Arbor.

MISSISSIPPI.—G. S. Cook, Milford.

MISSOURI.—Edgar Taylor, Palmyra; H. J. McKellops, Isaiah Forbes, St. Louis.

NEW HAMPSHIRE.—Frank Fuller, Portsmouth.

NEW YORK.—B. S. Whitney, R. G. Snow, John Lewis, George F. Foote, C. N. Harvey, Leon F. Harvey, C. N. Whitney, Buffalo; E. M. Skinner, A. Westcott, Syracuse; C. B. Foster, L. W. Rogers, Utica; S. N. Smith, Luman Matson, Auburn; E. Ware Sylvester, H. T. Tower, Lyons; C. Elmendorf, Penn Yan; E. D. Fuller, Peekskill; J. C. Gifford, Westfield; E. C. Hill, Niagara City; Alfred Miner, Niagara Falls; H. Hodge, Greene; S. F. Tremaine, Rome; James Corman, Mecklenburg; D. S. Goldey, Oswego; A. Blake, Sardinia; Philip Harris, Skaneateles; P. B. Briston, Dansville; T. D. Evans, New York Mills; J. G. Barbon, Le Roy; J. R. Dillingham, Boston; S. B. Palmer, Onondaga; H. Hooper, Binghamton; L. D. Walter, Lockport; E. G. Sumner, Norwich; J. Naramore, Rochester; A. H. Brockway, Chittenango; S. W. Robinson, Watertown; H. A. Coe, Theresa; George Clay, T. H. Burras, F. H. Norton, George H. Perrine, W. B. Roberts, John Allen, J. G. Ambler, B. W. Franklin, C. S. Weeks, James Pierson, M. Levitt, R. McIlroy, E. A. L. Roberts, Samuel Hassell, S. D. Sherman, New York City.

NEW JERSEY.—R. V. Jenks, Patterson.

OHIO.—H. A. Smith, J. Taft, S. L. Hamlin, James Taylor, J. Richardson, Charles H. James, J. G. Cameron, Cincinnati; C. P. Bailey, Cuyahoga Falls; J. C. Burroughs, C. Palmer, Warren; M. M. Oldham, A. A. Blount, J. Ramsey, Springfield; A. E. Lyman, Newton Falls; R. McDowell, Wooster; E. P. Crowell, William H. Atkinson, C. R. Butler, B. Strickland, G. Langsdorff, Cleveland; George Watt, G. L. Paine, Xenia; G. W. Keely, Oxford; C. M. Kelsey, Mount Vernon; Horace Parker, Edgefield.

PENNSYLVANIA.—W. H. Luce, O. L. Elliott, Erie; A. B. Robins, Meadville; Robert Vandervort, W. M. Wright, Pittsburg; B. M. Gildea, Harrisburg; J. L. Suesserott, Chambersburg; H. B. Blair, Columbus; J. H. McQuillen, Geo. T. Barker, T. L. Buckingham, W. Calvert, John R. McCurdy, S. S. White, A. Merritt Asay, Philadelphia.

VIRGINIA.—E. G. Winchell, Wheeling; J. George Wayt, Richmond.

VERMONT.—M. Tefft, West Poultney; J. R. Lewis, Burlington.

WISCONSIN.—D. W. Perkins, Milwaukee; Isaac George, Kenosha.

BRAZIL.—D. Van Tuyle, Rio Janeiro.

The order of business was then taken up—the minutes of last meeting were read and adopted, also the Treasurer's report.

The committee on memorializing Congress on the subject of appointing dentists in the army and navy, stated through their Chairman, Dr. Taylor, of Cincinnati, that they were not ready to report. On motion, the committee were continued.

Dr. J. R. McCurdy read the following communication from the members of the College of Dentists of England:—

To the Chairman of the Meeting of the American Dental Convention, to be held at Niagara Falls, on Tuesday, August 2, 1859:—

DEAR SIR:—We are instructed by the council of the College of Dentists of England to address you on the occasion of your important annual gathering at Niagara Falls, in the ensuing month of August.

A few months since, many of the dentists of this country anticipated the pleasure of inviting their trans-atlantic brethren to a general professional gathering in London, in the year 1861, at which period, it was understood, a Universal Industrial Exhibition, similar to that of 1851, would be held. The hope of such an Exhibition at the period indicated, is, however, dispelled, in consequence of the present disturbed state of the Continent of Europe, which has not only paralyzed all industrial efforts, but must inevitably retard civilization in many neighboring countries.

You are, doubtless, aware that differences of opinion in the ranks of our profession in England have tended very materially to check that unity of action which is so essential to the attainment of perfect organization and success; but we trust these differences will be speedily removed, so that, when the time is opportune for another "World's Convention," the unanimous invitation of the dentists of England may go forth to their brethren in America. In this hope, the council most cordially indulge, and it would give to the several members great satisfaction to welcome their American brethren to the shores of Great Britain, and especially with a view to the holding of a meeting in London of the "American Dental Convention."

We have the honor to be, Dear Sir, yours, faithfully,

GEORGE WAITE, M. R. E. S., *President.*

SAMUEL LEE RYMER, }
ANTHONY T. HOCKLEY, } *Secretaries.*

NO. 5. CAVENDISH SQUARE, LONDON, 15th July, 1859.

Dr. J. R. McCurdy was appointed to make suitable acknowledgment.

On motion of Dr. Taylor, of Cincinnati, the time allotted to each member for discussion was limited to ten minutes.

The election of officers being in order, Drs. Fuller and McKellops were appointed tellers, and on ballot, Dr. L. W. Rogers, of Utica, New York, was elected President; Dr. George Watt, of Xenia, Ohio, Vice President;

Dr. Frank Fuller, of Portsmouth, New Hampshire, Recording Secretary; Dr. P. P. Lewis, of Tallahassee, Florida, Corresponding Secretary; Dr. D. S. Chase, of Augusta, Georgia, Treasurer.

Executive Committee.—Dr. G. F. Foote, Buffalo, New York; Dr. Joseph Richardson, Cincinnati, Ohio; Dr. T. H. Burras, New York; Dr. J. Mason, Saco, Maine; Dr. Robinson, Watertown, New York.

On motion, it was *Resolved*, That the Convention hold but one session each day from 9, A. M. to 2½, P. M.

The Convention then adjourned.

SECOND DAY—AUGUST 3D.

At the appointed hour, the Convention convened. The Executive Committee, to whom was referred the Treasurer's report, stated that, on examination, it was found correct, and it was accordingly adopted.

Installation of officers following, Dr. Isaiah Forbes, the retiring President, then addressed the Convention, and expressed his pleasure at seeing so many new and strange faces, and was forced to the conviction that the sleeping energies of our profession had been awakened. He dwelt upon the duty the profession owe to their patients, and the importance of imparting to them information relative to our profession; for, in proportion as our patients are instructed, will we drive empiricism from our midst. We should call the attention of mothers to the teeth of their children, even in infancy, and the results of negligence should be represented to them.

He then referred to the death of our late fellow member in the following appropriate language:—Since we last met, the Father of this Convention has passed "to that bourne from whence no traveler returns." I refer to Dr. Elisha Townsend. He was every inch the dentist; he would have all to become as good as himself. His character is too well known to need illustration, and his earnest desire was to see us all rise to the topmost round of the ladder. Perchance there may be those present who believe that the spirits of the departed dead hover round those institutions they loved best while on earth; if there are such, for their sakes, I would say, Spirit of the Immortal Townsend!!! continue to hover over us, watching our movements, and guiding us in our deliberations; infuse in us thy great goodness, until we are like unto thee, and we will hold thee in grateful remembrance, until "The golden bowl shall be broken," "until time shall be no more." And may the example of a Townsend infuse in us a spirit of emulation, until our names shall be inscribed on the tablet of honorable distinction, and we, like him, become professionally immortal.

The remarks of the retiring President were received with applause, and were re-echoed in the heart of every member present.

Drs. Westcott and Taylor, a committee appointed for the purpose, then

conducted the newly elected President, Dr. L. W. Rogers, to the chair, who read an exceedingly well-written address, which was frequently applauded.

Subjects for discussion being in order, the Chair announced the following subject as first in order: "When and under what circumstances should teeth be extracted to secure a correct development of the permanent teeth?"

Dr. Taylor, of Cincinnati, read a lengthy and interesting paper on this subject.

On motion of Dr. Westcott, of Syracuse, the subject was divided for discussion. First, when shall the deciduous teeth be extracted to secure regularity of the permanent set? Secondly, of the development. He thought teeth should not be extracted before nature indicates a necessity for their removal, in cases where the deciduous teeth are firm, with fangs sound, but when the permanent tooth presented either anterior or posterior, would then extract the deciduous tooth.

Dr. Perkins, of Milwaukee, stated two interesting cases; in one of them all the lower permanent incisors were erupted back of the deciduous, as early as four years of age. His course of treatment was the extraction of the deciduous; but thought great care was needed in such cases, as irregularity is frequently occasioned by premature extraction.

Dr. Atkinson, of Cleveland, would rather not extract the deciduous, even where irregularity of the permanent was indicated, believing that patient force applied in the right way would overcome the irregularity.

The subject was also discussed by Drs. Ambler, Fuller, Bristol, Whitney, Allen, Cormack, Asay, Clay, and Coe.

The second part of the subject was then discussed.

Dr. Atkinson, of Cleveland, regarded the absorption of the fangs of the deciduous teeth as a subject on which we required light, preceding as it does the development of the permanent set. He was not prepared to advance any views on that point at present, but trusted that there would be a fair expression on the part of others.

Dr. J. H. McQuillen believed that the absorption of the fangs of the deciduous teeth was due to the great law of waste and supply that governs the other tissues of the body. Thus the permanent is building up as the other is breaking down. There are, however, exceptions to the rule; the blood may be so richly charged with calcareous constituents, that the demands of both may be supplied, and the permanent germ be matured into a perfect organ, whilst the deciduous tooth remains unabsorbed. Again, the germ of the permanent may not be present, or being so, development may not take place. This last consideration involves an important feature in practice, *that the deciduous teeth should never be*

extracted unless there are unmistakable evidences that the permanent ones are at least ready to erupt. Cases had come under his notice in which patients at thirty-five and forty years still retained their deciduous canines. And again, cases in which deciduous incisors had been extracted to make room for the permanent, without being followed by that result, the permanent ones, in fact, never coming to maturity.

Dr. Taft thought we ought to examine principles rather than isolated cases in which we have not a knowledge of all the circumstances. He would let the temporary teeth remain, if healthy, and the permanent are not making their appearance. If uncontrollably diseased, he would remove them. He did not know how far the development of the permanent teeth might be influenced by the presence of the temporary. If the pulp of a temporary tooth was dead, but no irritation resulted from its presence, he would let it remain.

Dr. Westcott had found the permanent growing without any connection with the temporary set. He had in his possession a specimen, obtained from Paris, of a cuspidatus tooth lying transversely above the arch. The tooth was large and firmly developed. He has extracted the deciduous eye-teeth as late as twenty years, and the permanent have presented and were large and strong. The theory of the carneous body throwing out a secretion which produced absorption, he considered of no value. Aside from the diseased teeth, thought the perfect development of the permanent teeth was not affected by the temporary set. He believed that of the different theories the one advanced by his friend Dr. McQuillen was the most satisfactory.

The next question was stated by the President to be—"Mechanical appliances and forces, to correct irregularities of the teeth."

Dr. Westcott presented several models of cases which he had treated successfully, and exhibited and explained an entirely new and original appliance for the correction of irregularity. He does not commence correcting irregularities until all the permanent set is erupted. In separating teeth he uses a wood that will not expand too much.

Drs. Roberts and Franklin, of New York, had found the vulcanite base exceedingly useful in manufacturing appliances for correcting irregularities.

Dr. Buckingham alluded to the spiral spring introduced by Dr. J. D. White for spreading the bicuspid. He preferred swaging a plate so as to fit the roof of the mouth, and then attaching bands to it, so as to press the bicuspid. As the teeth are moved, the plate should be straightened to keep up the pressure. It is sometimes necessary to employ two or three plates.

The Convention then adjourned to 9 o'clock on Thursday morning.

THIRD DAY—AUGUST 5TH.

At the appointed hour, the Convention convened. The minutes of the preceding day having been read and approved, the next subject of discussion was taken up.

“Under what circumstances and in what manner should teeth be filed to remove superficial decay, or preparatory to filling, to leave them secure from future decay.”

Dr. Taft thought the file should only be used on the approximal surfaces of teeth, and the decay should be so superficial as to be completely removed. In strong solid teeth, a depression might be left; but frail, soft teeth should never be filed so as to leave a shoulder or depression, so that any foreign matter would find a lodgment. After filing, the tooth should be dressed with stone and burnisher. In filing the anterior teeth, care should be taken to avoid marring their form and beauty. He preferred to use on the anterior teeth a chisel or sharp cutting instrument. The jarring sensation of the file is avoided, and periosteal inflammation is not apt to ensue.

Dr. Atkinson said it was important to have a few basal facts, or principles, that all could understand. If the decay did not extend through the enamel, the skillful use of a fine file, followed by a proper polishing material, rendered the tooth as good as ever; if through the enamel, and consolidation of the dentine had taken place, he would pursue the same practice; but, if the dentine is softened, he would expect little or no benefit from filing.

President Rogers would ask how far the dentine resists decay? Does not a perfectly polished tooth resist decay, as much as if the enamel had not been removed?

Dr. Chase, of Augusta, Ga., finds that filing is useful in superficial decay. He does not leave a perfect plain, but an oval surface. The tongue will then remove all particles that lodge between the teeth. He uses a beveled file to finish with, followed by stone and burnisher.

Dr. Perrine, of New York, contended that there was too much filing. That practitioners are not careful enough to discriminate in the patients their habits and temperament.

Dr. Fuller, of Peekskill, would call attention to the South Sea Islanders, who file their teeth to a great extent, and yet decay is comparatively unknown. He thought that filing is done too little in this country, and considered the file an efficient instrument for removing decay in the hands of the experienced. He files the molars wider on the labial, than on the lingual surface, so that food will have a tendency to work into the mouth.

Dr. Westcott thought filing depended on the age and habits of the patient. In cases where its use would seem to be indicated, of children

ten or twelve years of age, where the pulp cavity is easily reached, uses the file but seldom. His practice in the case of children is to use a wedge. When it is desirable to preserve a beautiful set of teeth, he spreads the teeth to give room for the file; can then file and fill them, so that when they come together they will retain their shape. In cases where no care is taken of the teeth, files as much as he dares.

Dr. Taylor, of Cincinnati, was in the habit of using the file to a great extent in superficial decay.

Dr. Forbes was strongly opposed to the use of the file in superficial decay. He never had used the file, and probably never should in such cases.

Dr. Vandervort finds filing more effective in black, than in yellow or white caries.

Dr. Butler, of Cleveland, thought the age of the patient and structure of the tooth should be considered. A central incisor, in his own mouth, was attacked by superficial caries several years since. The points of enamel were removed that had disintegrated by the file, the surface kept clean, particularly until consolidation of the dentinal tubes had ensued.

The discussion was participated in by Drs. Ambler, Roberts, Weeks, Allen, Wilson, and Wright, after which, on motion of Dr. Westcott, a vote was taken upon the question, "What proportion of the practitioners present would remove superficial decay on approximal surfaces with the file? A large majority voted in the affirmative.

At this time, by vote of the Convention, Dr. Solymon Brown presented to the notice of the members a dental work which he intended soon to issue.

Dr. Allen presented a resolution, "That this Convention is glad to hear that Dr. Brown contemplates the publication of his magazine," which was adopted.

The President announced the next subject for debate to be "Filling Teeth."

Dr. Perrine presented to the notice of members an ingenious and effectual appliance for closing the salivary ducts, invented by Dr. Hawes.

Dr. Ambler, of N. Y., stated his practice in filling fangs where *cheapness* is required. He places a pellet of gold at the apex of the fang, then fills with gutta percha and caps with gold; only uses this where patients are unable to pay.

Dr. Forbes said that, in America, the servant girl *would have* as good work in her mouth as her mistress. He thought that to study how to do cheap work had a tendency to introduce bad work.

The work of filling he would consider under five divisions; 1st. The preparation of the cavity. 2d. The preparation of the gold. 3d. Preparing the mouth. 4th. Filling the tooth. 5th. Finishing.

1. He would take an instrument so large that it would not enter the cavity, and remove all superficial discoloration. He would break down the borders till the walls of the cavity were perpendicular. He would cut down to the bottom with his favorite gouge instruments. Then he would bevel, or counter-sink, the mouth of the cavity, as if for a screw-head.

2. Cut a book of No. 4 foil, book and all, fold into strips of eight thicknesses, make cylinders of these strips, by laying each strip on a cushion and rolling it on a broach.

3. The only difficulty in preparing the mouth is with the under teeth. He would surround the tooth with a piece of muslin, or a napkin, and support it with his fingers.

4. Suppose the cavity to be three lines in diameter, and the same in depth. He would take a cylinder, having the same diameter, but long enough to project a line out of the cavity when standing on its bottom. With a flat instrument, he would press this cylinder firmly to one side. The cavity would thus be about half filled. The remaining half he would fill part way up, as it would be difficult to get a slim cylinder to go entirely to the bottom. With short cylinders, he would fill the remainder of the cavity. With a pointed instrument he would pierce the surface of of the plug, where practicable, and fill in with adhesive gold.

5. He would finish in the usual way.

Dr. Clark, of Savannah, Ga., formerly used adhesive, but now prefers non-adhesive gold. He exhibited and explained the use of a set of blocks in folding gold foil without touching it with the hands. He stated that he was indebted to Dr. Parsons for the idea.

On motion of Dr. Fuller, it was *Resolved*, That the Treasurer be directed to pay to Dr. Potter, of Norwich, Conn., the sum of \$154.20, that being the balance due him for expenses incurred in defence of the "Air Chamber Patent," with Gilbert, of N. Y., providing sufficient funds remain after the necessary expenses of the Convention are paid. Adopted.

Dr. Fuller, of Portsmouth, does not leave a shoulder to his cavities, but cuts out the fissures in the molares with the instruments of Dr. Forbes; shapes his cavity in molares larger at the top, making it cone-shaped; inserts his gold so that it will act as a wedge, and can then make an exceedingly dense filling.

Dr. Atkinson said this was altogether too important a subject to be fooled with. Definite rules were needed, and he would address himself to those who were now in the situation he once was. The most difficult case is where there is a strong predisposition to periosteal inflammation, as the tendency of this is to render the tooth a foreign substance. If the

patient could bear the operation, he would clean out the canal, and fill to the apex. The canal might be cleansed, and the tooth filled the same day, unless it was desirable to bleach it. As a dressing for the canal he would use a thread, strong enough not to break, applying alternately, creosote and tincture of iodine.

He had been requested to give his views of the use of the mallet in filling teeth. The mallet, he said, was a powerful condensing instrument. He had used it in the earliest years of his practice, but abandoned it out of respect for *authority*. He had again taken it up out of respect for his own judgment and *conscience*. He had successfully filled frail teeth by using it, that he could not so regulate the force as to fill without it.

In preparing cavities, when the enamel is under-cut, or not strong, it was important to level, or counter-sink the margins. And in filling with cylinders, he said, adhesive foil should not be used, as it would choke the cavity.

In reply to questions, he stated that if the canal was thoroughly clean, he did not care whether it was filled or not; and that his habit was to leave a pledget of cotton, saturated with creosote, high up in the canal, and file over it.

Exception being taken to the leaving of cotton in the fang—

Dr. Geo. Watt, of Xenia, Ohio, stated that the cotton would be converted into the carbonate of albumen, an indestructible compound, and he did not object to its use.

The question of final adjournment coming up, it was *Resolved*, To adjourn on Friday, at 12 o'clock, to meet at Saratoga Springs, New York.

The Convention then adjourned to Friday, at 9 o'clock.

FOURTH DAY—AUGUST 6TH.

The minutes of previous day having been read, the President announced the subject for discussion to be "Mechanical Dentistry."

Dr. Miller presented to the notice of Convention an improvement in the application of electricity for extracting teeth.

Dr. Franklin spoke of the advantages of silicious compound as an artificial base.

Dr. Franklin remarked that it ought to be generally known that plaster expands for five hours after it is mixed with water. Any one could try it by filling a glass bottle with it. He had seen the fit of a plate destroyed by the expansion of the plaster, in making an antagonizing model. To obviate this, he would lay a fold of soft paper in the plate, before putting it in the plaster.

Drs. Dunn and Loomis spoke of their success in the use of porcelain work.

The subject of silicious compound, and its adaptation to the wants of the profession, was discussed by Drs. Allen, Roberts, and Goldey.

The subject of "Professional Intercourse" was then taken up.

Dr. Wilson, of Boston, read an exceedingly interesting essay, entitled "The progress of Professional Quackery and Irregularities." On motion of Dr. Suesserott, a unanimous vote of thanks was presented to Dr. Wilson for his able paper.

Dr. Taylor, of Cincinnati, also read a paper on "Professional Intercourse," which was listened to by every member with attention.

On motion of Dr. Frank Fuller, of Portsmouth, Maine, it was *Resolved*, That the thanks of this Convention be tendered to the late President, Dr. Isaiah Forbes, for the ability and impartiality with which he has presided over its deliberations; and also to his associate officers, for the careful attention which has characterized the performance of their several duties.

Also, *Resolved*, That the thanks of this Convention be tendered to Dr. L. W. Rogers, for the faithful manner in which he has discharged his duties as a Committee to arrange preliminaries for the holding of the present Convention, and that he be appointed a committee to make like arrangements for the Convention at Saratoga in 1860. Adopted.

After some general discussion the Convention adjourned, to meet at Saratoga, first Tuesday in August, 1860.

We desire to acknowledge the courtesy and our indebtedness to the Editors of the *Dental Register*, for the remarks made before the Convention by Dr. Taft, on "irregularity," Dr. Atkinson on "filing," Drs. Forbes and Atkinson on "filling," and Dr. Franklin on "expansion of plaster."
—EDS.

THE GEORGIA DENTAL SOCIETY.

MESSRS. EDITORS:—The above Society was organized in Macon on the first of July last, at a meeting composed of dentists representing nearly every section of the State.

From the interest manifested on that occasion, we have every reason to look forward to future meetings as both pleasant and profitable.

After an agreeable session of two days—occupied mainly in details of organization—the Society adjourned to meet in Savannah, on the second Wednesday in June, 1860.

The following officers were elected for the ensuing year:—

President.—D. S. CHASE, Augusta.

1st Vice President.—F. Y. CLARK, Savannah.

2d Vice President.—G. W. EMERSON, Macon.

Recording Secretary.—W. F. LEE, Columbus.

Corresponding Secretary.—E. PARSONS, Savannah.

Treasurer.—J. FOGLE, Columbus.

Executive Committee.—W. JOHNSON, U. VAN GEISEN, A. F. BIGNON, E. W. ROBINS, and W. L. HOLLIFIELD.

Respectfully, yours,

WM. F. LEE, *Recording Secretary.*

It is gratifying to observe that the desire for local associations is increasing, and it is to be hoped that the example set by our Georgia friends will be imitated by every State in the Union. Judging from conversations with gentlemen residing in different sections of the country, it is not unreasonable to infer that the coming year will find the movement in that direction a general one. We should be pleased to receive the reports of existing, or future Associations.

From a copy of the Constitution, accompanying the above communication, we make the following extracts:

“Every applicant for membership shall be examined by the Board of Examiners.” The candidate submitting to an examination in either Operative or Mechanical Dentistry, or both, as he may desire. “If examined in only one department of practice, he shall give to the Board of Examiners satisfactory assurances that it is his intention to practice only in that department in which he elects to be examined.”

“No member of the society shall take a student into his office, and engage to teach him the practice, in either department of dentistry, in a less period of time than two years, said student promising to graduate in a respectable Dental College; all such students, during their pupilage, shall have the privilege of attending the meetings of this society, but shall take no part in its deliberations.”

J. H. M'Q.

EDITORIAL.

DIVISION OF LABOR.

The subdivision of the arts and sciences has contributed more, perhaps, to their advancement than any other cause. Economy and completeness seem to be the natural results of such division. Trace any pursuit back as far as possible, and it will be found to have been a jumble together of many things. The merchant who attempts to supply the wants of a community, soon obtains for his place of business the name of variety shop. Many practitioners, of fair abilities in our profession, believe that their distinction is in proportion to the number of *parts* they take in its practice; this is not so. If we look for anything excellent, we will apply to one who directs his whole attention to that one thing. We do not complain that our profession has been woefully mixed up, and still is, to a great extent, but is it not time that a greater subdivision of it was made for the good of all concerned? Is it not deserving of the attention of societies

and conventions? It was at one time, perhaps, unavoidable that a dentist's office was a dental depot. A dentist who works in his laboratory, is not at all times in a condition, for many reasons, to operate on the mouth of a patient; but it is true, that while he is a student he ought to become thoroughly acquainted with every portion of the mechanical department of his profession. It is not essential that a doctor should be practically a compounding druggist, but it is necessary that he should know what it means to be one. It seems to be a rule among druggists to keep a great many things from each other, as secrets, or *own ways* of doing things. This may all be proper and right, as all are alike in it; but they never apply to the medical societies for membership; it is understood that they would not be admitted; and yet, who has more business and friendly intercourse than the doctor and the druggist, or more respect for each other's calling. Now, we think the time has come for a great division to be made in our profession, a division of what is understood as the operative and mechanical departments; the manufactory of teeth, and the supplying of material to the dentist is already an extensive and separate business. If such a division were made, then associations could be formed in a manner that would be of use to those having membership. The operative dentists could form a society, and the mechanical dentists also. Then the association of the members of each respective society with each other, could be on an equal and agreeable footing. Such has not been, nor is now the case, in any society that we know of; if societies were formed in that way, the members would have common interest in each other. But as it is, there are conflicting interests; one portion are anxious to teach all they have learned by study and experience from liberal sentiments, to enlarge and extend the basis of their profession, and elevate its standing; but another set are non-committals; they have a good deal to say, but nothing definite to communicate; they learn all they can for selfish purposes, and as soon as an idea has assumed a tangible form, whether it has been helped onward by the liberal portion or not, it is *patented*, and brought into the society or offered to the profession for *sale*. We do not object to dental patents of mechanical matters, any more than we do to patents generally, but we do hold that patentees and liberal dentists can never associate on the same grounds in the same society.

J. D. W.

THE CONVENTION OF DELEGATES AT NIAGARA.

By referring to the proceedings of societies, it will be found that the delegates appointed by the dental societies and colleges, met in convention at Niagara Falls; and that the preliminary steps were taken toward the formation of a National Association upon a representative basis. No effort was made to encroach upon the rights, or to wound the sensibilities

of the large portion of the profession that was unprepared to send representatives to the meeting; on the contrary, whilst aiming to secure the highest possible standard of qualifications for membership, there was an earnest desire manifested on the part of those present to secure the hearty co-operation of the profession in every part of the Union, in support of the movement. This was demonstrated in the most conclusive manner, by deferring the final adoption of a *Constitution* until the next annual meeting, and in the invitation extended to the profession to increase the number of local societies, and send delegates to unite with the representatives from existing organizations in the establishment of the proposed association.

Though coming from different sections of the country, the unanimity of sentiment that prevailed among the delegates; the heartiness, system, and decorum that characterized the proceedings; and the expressions of sympathy and approval from many reputable practitioners, who, though at Niagara, could not, from the fact that they represented no local society, participate in the meeting, indicated, in an unmistakable manner, that "the fullness of time had arrived," and that it was only necessary that the objects aimed at should be fully comprehended for all opposition to cease.

It is true there are some who look upon a National Association as a school, where those who have lacked even the care and tuition of a private preceptor, whose acquaintance with our literature is as limited as the lisping babe, and whose operations bring constant reproach upon the profession, may have an opportunity of obtaining some knowledge of the theory and practice, and enjoy the largest privilege of fully exposing their limited attainments and shallow reflections to the profession and public. That such an opinion is erroneous, must be apparent to the least reflecting. Elementary knowledge, on the one hand, should be obtained in private offices and laboratories, from text books and colleges; and a National Association, on the other, should be composed of gentlemen perfectly conversant with the science and art of the profession, and whose minds have been matured by experience and reflection. Attracting, as the proceedings of such an association does, more or less attention on the part of the community, and supposed to reflect the talent and scientific attainments of the profession generally, according as its transactions are of an elevated or degraded character, will the profession as a body, rise or fall in public estimation.

In advocating the establishment of an association upon a representative basis, we do it from a well-founded conviction that the benefits arising from such an organization would be threefold. First, in the formation of a National Association, whose members, if selected by each institution

represented, on account of their abilities and attainments, and the society thus constituted, divided into sections or committees for the purpose of instituting investigations, and making annual reports on anatomy, physiology, microscopy, chemistry, surgery, and mechanics, in their relations to the principles and practice of dentistry, would elevate the professional standard by developing a more accurate science and a more perfect art. Secondly, in promoting the establishment of local societies in sections of the country where, as yet, they have "neither a local habitation or a name," through the liberalizing influence of these associations doing away with petty jealousies among neighboring practitioners, and promoting in their place agreeable, social relations, thus affording frequent opportunities for an interchange of views in theory and practice, benefitting alike patient and operator, and inducing that *esprit de corps* which, wherever it exists, commands the respect of the community and liberal professions in particular. Lastly, the combined influence of national and local societies would develop that desire for mental cultivation, literary research, and scientific investigation so much needed on the part of individual members of the profession.

When we take into consideration the advantages arising from local associations, which, like the quality of charity, "blesseth him that gives, and him that takes," it is truly astonishing that any state, city, or town of any size in the Union, should be found not possessing at least one within their limits.

J. H. M'Q.

REVIEW OF DENTAL LITERATURE AND ART.

BY J. H. M'QUILLEN, D. D. S.

BRITISH JOURNAL OF DENTAL SCIENCE—JUNE.

Richard Owen, F.R.S., Hunterian Professor to the Royal College of Surgeons, is without question one of the most remarkable men of the present day. Laboring in the same field in which Cuvier, De Blainville, Agassiz and Leidy have accomplished so much, he stands second to none of them. Possessing in a remarkable degree the talent of patient observation and research, demanding frequently months and years in solving a single fact, he enjoys, in addition, that rarest of all qualities, the highest capacities for the broadest generalizations. In support of this conclusion, we would refer to his "Odontography, a Treatise on the Comparative Anatomy of the Teeth, their physiological relations, mode of development, and microscopic structure in Vertebrate Animals." In this work he has, we were going to say, exhausted the field, but correct the remark, on remembering that the Paleontologist (particularly in our own country) is constantly discovering new genera of the extinct species, thus swelling

the list of dental organs yet to be described. Some idea of the labor expended upon the work may be realized by looking over the Atlas, which contains 150 plates, with beautifully executed engravings of the general and microscopical structure of the teeth of extinct and living vertebrata. The description in the text, of the dental organs, was in every instance taken from actual specimens that he had under examination at the time. To accomplish this, after exhausting the collection in his own country, he visited the Continent, and examined the Parisian Museum, and the Anatomical and Zoological Collections at Leyden and Frankfort, and, in addition, was furnished with many valuable specimens by private friends, among whom we find Sir Philip Egerton, Dr. Buckland, and Prof. Agassiz. The size of the work and the numerous engravings make it so expensive, (\$36,) that the number of purchasers must, of necessity, be limited. It cannot be expected, therefore, that every dental practitioner would be able to procure a copy, but the library of each local Association should possess one. The dental profession in particular are under great obligations to Prof. Owen for much of their knowledge of the development and general and microscopical structure of the teeth. To him we are indebted for the term *Dentine*, in place of the unsatisfactory and indefinite expressions, "ivory" and "tooth bone."

Such men are rare; they should be prized, honored, and emulated. Believing that the antecedents of such a man cannot be uninteresting to our readers, without further comment we refer them to the following:

"At a recent dinner of the Medical Society, the following remarks were made by Professor Owen on the occasion of his health being drunk. He said, he wished it to be understood that he was not a mere man of science, but that he was really and truly one of the body of gentlemen whom he was addressing; in fact, that he was a medical man. After finishing his studies in Edinburgh, he came back to London, and became a licentiate of the Apothecaries' Company, and a member of the Royal College of Surgeons. He then started in practice, taking up his abode between Bartholomew's Hospital and Lincoln's-Inn-Fields; in fact, he became as much a practitioner as any of those whom he was addressing. He had brought young children into the world, and had made acquaintance with breech and other abnormal presentations. He had performed numerous surgical operations, some capital ones, and could boast that he never had an unsuccessful case. This was in 1827. Shortly afterwards, it happened that Mr. Abernethy was looking out for some one to assist Mr. Clift in arranging and cataloguing the Hunterian Museum. Mr. Clift was fully up to his work; but he wanted some one, fresh from the schools, who was acquainted with the modern scientific phraseology of zoology and pathology to aid him in the task. Mr. Abernethy pitched upon Mr. Owen, and he was offered and accepted the post; but he still, for many years, continued his private practice, a certain number of hours only being devoted to the College. During this time Mr. Clift was also aided by his son, who would naturally have succeeded him. In 1833, however, this beloved son of Mr. Clift died, and then the office he had

held, was open to Mr. Owen; but, if he accepted it, he was to retire from practice. 'I was deeply attached,' said Mr. Owen, 'to Mr. Clift, but I also loved his daughter,' and this decided his choice. He thenceforth devoted the whole of his time to the College. In 1836 Sir Charles Bell left London for Edinburgh, and Mr. Owen was then appointed Hunterian Professor. What he then did, how he labored in behalf of the College during the twenty best years of his life, may be gathered from the existence of the famous volumes—the catalogue of the Hunterian Museum. Few people, perhaps, have an idea of the labor expended on those volumes. All that Hunter left as a guide to the preparations he had made and left behind him, were a few sheets of writing paper, about half an inch thick. The truth is, he had no time for writing down the details of all the wonderful things he left behind him. Happily the Zoological Society was then established; indeed, without its aid we never should have been able to have had catalogued and described all the dissections and preparations left by Mr. Hunter; we should not have known what they were. The astounding industry and genius of Mr. Hunter were then displayed. His genius, indeed, had penetrated far back into the zoology of other days; and in his museum he left behind him the germ of all the surpassing discoveries since made in paleontology; he left enough to prove that his acute mind had embraced even this vast subject, and had appreciated the stores of matter to be derived from its study. For twenty years, then, Mr. Owen devoted himself to this labor, and the thin manuscript of John Hunter was gradually expanded into those piles of volumes—the catalogue of the College of Surgeons. But corporate bodies have no conscience; and 'when my years of labor were concluded, I received,' said Mr. Owen, '*the thanks of the College of Surgeons!*'"

DENTAL REGISTER OF THE WEST—AUGUST.

"ALVEOLAR HÆMORRHAGE. By GEORGE WATT.—Though in ordinary cases the extraction of a tooth is followed by but a slight flow of blood, yet few practitioners have failed to witness cases in which the hæmorrhage was quite annoying, if not dangerous.

"Alveolar hæmorrhage may be considered as *accidental* or *constitutional*. Without feeling under obligation to defend the propriety of the use of these terms, we will state that, when the hæmorrhage is the result of an undue laceration or incision of the gum and its vessels, we call it accidental—when it results from a morbid state of the blood, or from a peculiar state of the constitution, (called the hæmorrhagic diathesis,) we consider it constitutional.

"In the treatment of accidental hæmorrhage, the appropriate use of styptics and pressure will accomplish all that is desired. Nature's process for arresting hæmorrhage is, to close the bleeding vessels by coagulating the fibrin of the blood—by forming a *clot* in or around the mouth of the vessel. The clot thus formed is, in many cases, not firm enough to resist the pressure of the blood, and hence the bleeding continues. Art steps in to assist, and, by *pressure*, retains the clot in its place, when, in most cases, it effectually plugs up the vessel. In a good constitution, except where a large vessel is divided, this combination of the powers of art and nature is able to arrest the bleeding. But when the divided vessel is large, the pressure of the blood breaks down (or tears up) the clot, and other means are necessary. And if the blood be abnormal, the clot, if

formed at all, may be of so soft a texture that it will avail nothing, even when pressure is appropriately applied to support it.

"The object in using styptics is to obtain a firmer clot than is produced by the spontaneous coagulation of the blood. All styptics act chemically. To exert a styptic influence, an agent must have an affinity for some component of the blood, and the compound formed by virtue of this affinity must be to some extent insoluble. The albumen and fibrin are the principal constituents of the blood concerned in the combination with styptic agents. Many substances which manifest a strong affinity for these substances have no styptic influence. For example, the caustic alkalies combine energetically with them, but form liquid compounds, and therefore present no obstruction to the flow of blood.

"It is important, then, in deciding the choice of styptic agents, to notice carefully the characteristics of the compounds formed, respectively, by their union with albumen and fibrin. To be better understood, let us suppose a set of experiments with tannin, nitrate of silver, and albumen. The nitrate combines energetically with the albumen, forming a firm coagulum or clot; but this coagulum softens and dissolves in albumen. Hence, if more albumen be present than is sufficient to combine with, and neutralize the nitrate, the clot cannot remain solid and firm.

"If, then, the nitrate be applied to a bleeding vessel, a coagulum is formed in its mouth; but the blood in the vessel (containing fresh albumen) gradually dissolves its way through it. The arrest of hæmorrhage by this agent is, therefore, but temporary. We are thus minute because many infer that, as the nitrate is a powerful escharotic, it is also a most reliable styptic.

"On the other hand, if tannin (tannic acid) be applied, the coagulum will be less extensive but more firm, while it is not soluble in albumen or any other ingredient of the blood. Consequently the blood cannot *dissolve* its way through it, as in the former case; and, if it be judiciously supported by pressure, so that the blood cannot *break* through it, the result is an arrest of the bleeding.

"Sulphate of copper, sulphate of zinc, acetate of lead, and kindred mineral astringents, also form compounds with albumen and fibrin which are soluble in an excess of albumen, and, consequently, in fresh blood. Their styptic power is, therefore, but transient.

"In February, 1858, Professor C. had an upper molar extracted, about 10 o'clock in the morning. The hæmorrhage was slight at the time; but about 12 M. it became excessive. He applied successively, several of the mineral astringents, with but temporary success. At 8 P. M., I visited him, and found his attendants, by his direction, using the sulphate of copper and pressure, without any diminution of the flow of blood. I removed the application, washed out the mouth, applied a solution of tannin on a pledget of cotton, and confined it by pressure. The bleeding ceased immediately, and did not return. A number of similar cases might be reported, but this must suffice, as our present object is *illustration*, not *confirmation*.

"The sesqui chloride of iron is a more reliable styptic than tannin. It combines promptly with the albumen and fibrin of the blood as well as with the coats of the vessel; and the compound it forms with them is all that we can expect. In urgent cases we much prefer it to tannin.

"The actual cautery (a hot iron) is not a desirable remedial agent in alveolar hæmorrhage, nor is it as efficient as other means in our power.

"In making pressure for the arrest of the alveolar hæmorrhage, some

judgment is required. Filling the socket will not always answer the purpose. The margins of the gums escape the pressure when it is applied, and may continue to bleed. It should, therefore, be applied so as to bring them toward each other. This is readily accomplished by cutting a piece of cork in the shape of a block letter V, and setting it astride the gum, after applying to it a fold of cotton, wool, or other soft substance. The closure of the mouth on the cork gives the required pressure; and the mouth should be kept closed by a bandage.

"When the hæmorrhage arises from constitutional causes, the constitution should be treated: and, when it is known that the patient is of a hæmorrhagic diathesis, the treatment should generally precede the operation. If bowels are constipated, a saline cathartic will be advantageous, after which opium and acetate of lead should, generally, constitute the main reliance.

"General principles must govern the practitioner in the use of these remedies. Of course, different cases will require different treatment.

"If there be no opportunity to treat the constitution before the operation, it should be promptly treated afterwards; and at the same time, local treatment should be diligently used. The intelligent operator will seldom have much difficulty, if he has an opportunity to treat the case promptly."

The subject matter of the article above is one of great importance to the dental profession, as not only alarming hæmorrhages frequently follow the extraction of teeth, but fatal cases have been recorded. It is therefore highly necessary that the dentist should be perfectly acquainted with the characteristics of normal blood, the peculiarities of the hæmorrhagic diathesis, and so perfectly acquainted with the remedies had recourse to, in cases of hæmorrhage, that he may be prepared for every emergency. The peculiar features of the *hæmorrhagic diathesis* are, a tendency bleeding or echymosis from the slightest cause—the hereditary transmission, principally, though not solely on the male side—a deficiency of the solid constituents of the blood—the fibrin and red corpuseles not being present in due proportion, thus inducing a defective power of coagulation—and an absence of contractility on the part of the capillaries and arterial twigs. In the latter, the middle or muscular coat being very thin, the vessels, instead of contracting and retracting, and by that means reducing their calibre, remain *open* and *dilated*, pouring forth their contents freely.

In managing a case of hæmorrhage, the practitioner should bear in remembrance that, whilst lying in a horizontal posture the patient may lose an amount of blood he can ill afford to spare, without giving other evidence than the blood by his side. The patient, therefore, should be placed nearly in a sitting posture. This may induce a slight faintness or perfect syncope, during which the force of the heart will be modified, and the hæmorrhage retarded or completely arrested. Another indication is to thoroughly remove the coagulum, so that the styptics, astringents, compresses, and other remedial agencies may be brought to bear directly upon the bleeding surface.

TREATMENT OF RECENTLY EXPOSED NERVES WITH NITRIC ACID—WITH CASES.—BY J. TAFT.—“At the meeting of the American Convention, in Cincinnati, in August last, the treatment of recently exposed nerves, with nitric acid, was first suggested in our hearing, if memory is correct, by Dr. Wright, of Pittsburg. The idea struck almost every one present, as somewhat novel in character. Dr. W. represented his success in this treatment as almost universal. Upon the representations made, I was induced to try it, and the result has been success beyond all anticipation. The treatment seems to be well adapted where the nerve is exposed by excavation, or but recently exposed in any way. Patients having a good constitution, with strong vitality, and of good recuperative powers, would be preferable, though it may answer well in cases of feeble vitality.

“Wounding the pulp in excavation is a matter of no consequence; it is probably quite as well to be punctured, and a little blood taken from it.

“After the cavity of decay is entirely excavated and ready for filling, it should be wiped out with cotton, then take a pine stick and dress it down till the end is about the same size as the orifice at which the pulp is exposed; then dip it into chemically pure nitric acid; then touch the pulp at the point of exposure, with the end of the stick thus charged; retain it there from one-third to a whole minute, when the pulp at the point of exposure will be found cauterized and blackened. The operation of filling may then at once be performed, ordinarily without any intervening substance between the gold and cauterized part; this, however, in some cases, would be indicated, especially if the pulp was exposed at comparatively a large orifice. Introducing the filling, if properly performed, gives no pain.

“The following cases pretty fairly represent the treatment and success of my practice in this particular:—

“CASE 1.—June 26th, 1859, Mrs. E., aged twenty-four years, strumous diathesis. Had several teeth filled. The left central superior incisor had a large cavity in the central proximal surface. After excavating, the pulp was exposed at a small point; it was touched with a sharp instrument, and bled slightly. The tooth had not ached, and the pulp was healthy. Touched it with nitric acid till the point of exposure was blackened; then dried out and filled as usual, without causing any pain; had no intervening substance.

“CASE 2.—Same patient, same time. The superior cuspid of the left side was largely decayed on the anterior proximal surface. The cavity about two months before had been *stuffed* by one who did not know what to do with it; the pulp being slightly exposed, was very sensitive, and had been in that condition all the while since it was thus *stuffed*. Removed the loose gold from the cavity, and found decay going on rapidly, and the pulp exposed at a considerable orifice, and in quite an irritable condition; it bled freely at a touch. Cleaned and formed the cavity, touched the pulp at the point of exposure with nitric acid till it was blackened, after which there was some pain; applied creosote for a few moments, by which the pain was wholly subdued; then filled the tooth in the usual manner without causing pain; used no intervening substance. This is the most unfavorable case in which I have employed the nitric acid treatment. Two days afterwards saw the teeth, and they were doing well; not the slightest uneasiness had been experienced by the patient.

“CASE 3.—July 9th, 1859, Mrs. L., aged twenty-two years, feeble

constitution. Had the first left superior bicuspid largely decayed on the anterior proximal surface. Pulp was exposed, but in a healthy condition. Excavated the cavity without wounding the pulp; touched it with nitric acid, and filled as usual, without pain.

"June 12th.—Since this tooth was filled, there has been some pain, of neuralgic character. The case is a doubtful one.

"In many cases, the application of the acid produces no pain whatever; in others, a sharp twinge is experienced at first touch. In a healthy pulp, there is little or no pain, while those in a state of irritation are usually somewhat painful under the application."

Thoroughly convinced *by experience* that half-way measures will not answer, when the dental pulp is exposed, we cannot endorse, and, on the contrary, feel impelled to protest, in the most emphatic manner, against the plan of treatment suggested above. Years ago, after most carefully conducted experiments, the effort to preserve the vitality of exposed pulps was abandoned as impracticable by the vast majority of thorough operators in every part of the Union. It is quite surprising, therefore, to find some of our eminent Western brethren reviving an obsolete and reprehensible mode of practice. Whilst opposed to such a course, we freely acknowledge, however, the right every one has to purchase his own experience.

The abnormal conditions induced by the mere exposure of the pulp—the contact of a foreign body (the plug) with it—the variations of temperature to which it would be subjected by the conducting qualities of the filling—have been descanted on so frequently and fully as prolific causes, either singly or combined, calculated to destroy the pulp, induce discoloration of the tooth, and establish subsequent periostitis and alveolar abscess, that it is not necessary to dwell upon, but merely allude to them as forcible and unquestionable objections to such procedure.

The invariable indication, in treating an exposed pulp, is to devitalize by escharotics, and then, with delicate and properly constructed instruments, to thoroughly extirpate it. Of escharotics, the arsenical paste, in the hands of the majority of practitioners, has proved the most efficient; one application, as a general thing, proving all-sufficient. Cases, however, occur, in which the entire pulp is not reduced so easily to an eschar. A large portion will be found in that condition, but some distance up the root there still remains a part that must be removed, and yet is exquisitely sensitive to the touch of an instrument. Regarding a second application of the arsenical paste as quite objectionable, we have lately adopted the use of nitric acid in such cases with decided advantage. In applying the acid, a delicate piece of broom-corn is used. This, having been previously dipped in the acid, is forced as far up the root as demanded, and a perfect eschar of the remaining portion of the pulp is effected. The toughness,

thinness, and pliability of the broom-corn admirably adapts it for the purpose indicated.

In conclusion, we would suggest that "wounding the pulp in excavation is a matter" of considerable moment to the patient, if not the operator. The intense suffering that is experienced by the slightest touch of an exposed nerve, should be sufficient to induce the humane and considerate practitioner to manipulate in the most delicate and gentle manner, whilst engaged in removing foreign substances from the cavity of decay prior to making an application. If, notwithstanding this care, the pulp should be wounded, and severe pain induced, instead of applying an escharotic at once, the patient should be dismissed until the next day with a narcotic application to the aching tooth.

PERISCOPE OF MEDICAL AND GENERAL SCIENCE IN THEIR RELATIONS TO DENTISTRY.

BY GEO. J. ZIEGLER, M. D.

On the Classification and Geographical Distribution of the Mammalia. By RICHARD OWEN, D. C. L. etc. etc.—This eminent naturalist lately delivered a lecture on the above, in the University of Cambridge, England, an abstract of which, taken from the *British Medical Journal*, is given in the *Medical News* for August. After noticing the different systems of Aristotle, Ray, Linnæus, and Cuvier, Prof. O. observed that he "had bestowed much labor, for many years, upon the investigation of the characters of the brain in the different classes of animals; and, two years ago, he felt himself strong enough to draw out a classification of mammals founded upon the differences in the characters of the brain. That organ consists, in mammals, of four parts—the cerebellum, the optic lobes, the cerebral hemispheres, and the olfactory lobes.

"In the lowest order of mammals—the non placentalia—which includes the monotremes and the marsupials, there is no connecting medium or commissure (*corpus callosum*) between the cerebral hemispheres; and these parts are very small. These animals, therefore, he names LYENCEPHALA, or loose-brained. He had paid particular attention to the habits and characters of these animals, to ascertain with what peculiarities the absence of so important a part of the nervous centre is associated; and he found that there is in them a remarkable want of *memory*. * * *

"The next class of animals he calls LISSENCEPHALA; because in them the cerebral hemispheres, though larger than in the preceding class, and united by a transverse commissure, are quite smooth—that is, without convolutions. This includes the rodentia, bruta, insectivora, and cheiroptera. They are cosmopolitan, being found in all parts of the world, though a larger number of them are natives of South America, and some are confined to that region. The instincts are commonly much developed in them.

"Under the name GYRENCEPHALA he classes the animals in which the increased amount of gray matter requires for its packing that the exterior of the cerebrum be thrown into convolutions or *gyri*. This part of the brain is also much larger than in the former classes. The cetacea,

sirenia, toxodontia, proboscidea, terissodactyla, artiodactyla, carnivora, and quadrumana, are included in this class.

“The Professor pointed out some of the chief distinguishing features of the several orders, particularly with reference to the locomotive organs and the teeth. He drew attention to the fact that, in animals where the numbers of the toes are even (as in ruminants, where there are two; and in the hippopotamus, where there are four,) the stomach is complicated in its structure, and the colon is simple; moreover, the articular surface of the astragalus is divided into two equal, or nearly equal, parts; and the structure of the teeth is symmetrical: whereas in the animals, where the number of the toes is uneven (as in the horse, where there is one; in the rhinoceros, where there are three; and in the elephant, where there are five,) the stomach is a simple bag; the colon is more complicated; the articular surface of the astragalus presents unequal facets, or only one; and the structure of the teeth is unsymmetrical. Further, in the even-toed animals, it is very curious that the horns are always in pairs, usually two; or, if more than two, there are four, two being placed behind the others; whereas, in the uneven-toed animals, there is rarely more than one horn, which is in the middle line; and if there be more than one, as in the two-horned rhinoceros, they are still not in pairs, but in the middle line, one behind the other. Thus some countenance is given to the Platonic idea of the prevalence of numbers.

“The highest class, ARCHENCEPHALA, which comprises only man, is distinguished by the great development of the hinder lobes of the cerebrum; these quite covering the corpora quadrigemina and the cerebellum. The posterior horns of the lateral ventricles, and the hippocampus minor, are peculiar to man, not existing in any other animal. Coincident with this perfection of the brain, we find a corresponding perfection in the other organs, as evinced by the more complete manner in which particular parts are devoted to particular purposes. This is especially seen in the case of the foot, which by the strength and conformation of its components, and by the construction of the great toe, is enabled to do the whole work of bearing and propelling the body, so that the upper pair of limbs are left free to minister to the intelligent will.

“The Professor concluded by an eloquent appeal to his audience to set a proper value upon that marvellous mechanism with which they were gifted, and which was fitted to be, and which ought to be, the tabernacle of the Holy Spirit.”

On the Intimate Structure and Functions of the Brain and Spinal Cord of Man and other Vertebrata. By M. N. JACUBOWITSCH.—“To this work the Academy of Natural Sciences, Paris, accord the first Montyon Prize.

“This work, in importance to histology, physiology, and comparative anatomy, holds the first place. The author has distinguished and demonstrated that the nervous system is constituted essentially of three orders of elements:—

“1st. The stellate cellules, (the largest;) these are the source of all movement.

“2d. The fusiform cellules, (the smallest;) these are the source of sensibility.

“3d. The oval or round cellules; these belong to the ganglionic system.

“The conclusions at which the author has arrived, are, that the differ-

ent elementary and physiological properties of the nervous system of man are located in these histological elements, (cellules,) which are as distinctly characterized as their form and volume.

“The Commission express the most lively interest in the demonstrations of the author under the eye of the Academy, and the preparations elucidating these experiments. A more arduous task than the work submitted, is in store for the author: he proposes to the Academy the separation (*debrouiller*) of the texture of these elements, with a view of determining the special physiological function of each. He is to determine the precise disposition of these histological elements of the spinal cord and brain, and indicate in each of these the centres of the cellules or fibres of the groups, accumulated, mixed, or separate.”—*Pac. Med. & Surg. Jour.*

Pathological Laws of Nervous System. Extract from Dr. BENNETT'S Work on Physiology. By J. C. D.—“All the functions of the nervous system may be increased, perverted, or destroyed, according to the degree of stimulus, or disease, operating on its various parts.

“‘The seat of the disease in the nervous system influences the nature of the phenomena or symptoms produced.

“‘The rapidity or slowness with which the lesion occurs, influences the phenomena or symptoms produced.

“‘The various lesions and injuries of the nervous system produce phenomena similar in kind.’”—*American Journal of the Medical Sciences.*

“*On the Causes of Death after the Removal of the ‘Point Vital’ of the Medulla Oblongata.* By Dr. E. BROWN-SEQUARD. (*Journal de Physiologie*, April, 1858.)—Anatomists are aware that there is a small v-shaped portion of gray substance in the v-shaped space which results from the bifurcation of the medulla oblongata, and that the ‘point vital’ corresponds to the apex of this v-shaped portion of gray substance. It was called point vital, nœud vital, or point premier moteur du mécanisme respiratoire, because instant death is the consequence of its removal. The theory was, that this point was the centre and stronghold of life—that in it all the life of the animal was accumulated. Dr. Brown-Sequard, however, shows very clearly that M. Flourens has erred in ascribing this importance and this function to this part of the nervous system. He shows that death is not always the immediate result of removing the ‘point vital.’ He shows, that when death happens suddenly after this operation, it is due, in part, to the sudden stoppage of the movements of the heart, in consequence of irritation of the medulla oblongata. He shows that the action of the heart and lungs may be arrested, or enfeebled, as much by the irritation of the neighboring parts as by the irritation of the ‘point vital’ itself. He shows that the removal of the ‘point vital’ does not suddenly put a stop to the movements of the heart, after the pneumogastric nerves have been divided. He shows that the respiration and circulation may go on effectually and regularly for several days after the removal of the ‘point vital,’ and that, consequently, this point has no claim to be regarded as the focus in which the pretended vital force has its origin. He shows, also, that voluntary motion and sensation are not destroyed by the removal of the ‘point vital.’”—*Half-Year. Abstract.*

On Difficult Deglutition. By JOHN ERICHSON, ESQ., F. R. C. S.—Mr. E. considers that there are at least eight different conditions which may give

rise to dysphagia, independently of stricture of the œsophagus. The following is most important to the dental practitioner:—

“The eighth and last class of cases are those in which deglutition is obstructed in consequence of the impaction of some foreign body in the gullet. Now, of course, if a man swallows such a thing as a piece of mutton bone, or the settings of artificial teeth, it generally lies across the gullet in such a manner as to be easily felt by the surgeon on passing a probang; but there are other cases in which a foreign body becomes lodged in such a way as to escape detection and removal. Some years ago I was requested to see a patient who was said to have swallowed a piece of gutta percha. He had, it appeared, in consequence of having lost several teeth, endeavored to construct an artificial masticatory apparatus for himself, which had become loose, and he had accidentally swallowed it. A few days afterwards, finding that deglutition continued difficult, he consulted a very able surgeon, who carefully examined him; but not detecting any foreign body, he considered that the piece of gutta percha had passed into the stomach, and that the œsophagus had been scraped by it in its passage down. Inability to swallow solids came on. I saw him six months afterwards. The question then was, whether the foreign body was still impacted in the œsophagus, or whether the symptoms arose from damage inflicted on that tube. I examined the œsophagus most carefully, but failed, as other surgeons had previously done, to discover the existence of any foreign body. I thought, I confess, that the œsophagus had been injured in some way, and that probably epithelioma was developing itself, and would, sooner or later, prove fatal. At all events the case did end fatally; for one day while at dinner, the patient suddenly vomited a large quantity of blood and fell down dead.

“On examination after death, we found that the piece of gutta percha had formed for itself a bed in the wall of the œsophagus, lying parallel with the inside of the tube, and that the ulceration of the mucous membrane caused by its presence had opened some œsophageal vessels—which we could not ascertain, (it was not, however, either the carotid artery or jugular vein;) thus giving rise to the copious and sudden hæmorrhage which had caused the patient's death. The surface of the gutta percha which looked into the œsophagus being constantly covered and smoothed over by mucus, and being protected, as it were, by a rim of swollen mucous membrane all around it, had allowed the probang to pass easily without its presence being detected.”—*London Lancet*.

Organic Tension.—“In the ordinary state, most of our organs are held in a certain degree of tension by various causes; the voluntary muscles by their antagonists; the hollow muscles by the different substances they enclose; the vessels by the fluids which circulate in them; the skin of one portion by that of neighboring parts; the alveolar walls by the teeth which they contain, etc. Now, if these causes cease, contraction supervenes. Divide a long muscle, its antagonist shortens; empty a hollow muscle, it contracts; prevent an artery from receiving blood, it becomes a ligament, cut through the skin, the edges of the incision separate, drawn by the retraction of the neighboring portions; extract a tooth, the alveolus becomes obliterated, etc. In these cases it is the cessation of the natural extension which determines the contraction.”—*Bichat, quoted by Savory. Ibid.*

Influence of Electricity over the Nervous System.—As the subject of electricity in its connection with anæsthesia is attracting much attention at the present time, it may not be unprofitable to glance at it in its general relations to the nervous system. The following, which occurs in a paper on its uses in nervous affections, by Dr. A. C. GARRATT, (*Boston Medical and Surgical Journal*, August 4,) will afford a somewhat comprehensive view of the subject:—

“1st. Electricity is the only agent which can excite at one time sensation, and at another time contraction, according to the direction in which it is made to traverse a nerve.

“2d. The electric current in passing perpendicularly or transversely across the nerve twigs, or trunks, produces no phenomena due to the excitability of a nerve.

“3d. The electric current has no effect on a nerve, *i. e.*, it neither causes contraction nor sensation, when its action on the nerve is prolonged.

“4th. The electric current alone can have the power to modify the excitability of a nerve, and even to destroy it, when the current circulates in a certain direction, but can preserve or augment the given excitability, when passing in the opposite direction.

“5th. The electric current, of all agents, is the only one which possesses, for a long space of time, the power to recover the excitability of the nerves, when they have become very much enfeebled, or even dead to other stimuli.

“6th. The electric current, when transmitted along the nerves in the course of their ramification, produces contractions always more energetic than that which the same current produces when passing along the same nerves in the opposite direction.

“7th. The out-running current of electricity weakens, and rapidly destroys the excitability of a nerve, while the passage of the inverse current augments it, within certain limits.”

Voltaic Narcotism.—The *Medical News*, for August, presents an abstract of Dr. RICHARDSON'S further investigations on this subject, from which we make the following extracts:—

“On the human subject I have had the opportunity of applying the process for producing local anæsthesia on several occasions. In five instances, the details of which are now in process of publication in the Report of the College of Dentists on ‘Electricity as an Anæsthetic,’ the process was adopted exactly after the method described in the case of extraction of a tooth given in my last communication. In three of these cases, the success of the process was complete. In the others, it was but partially successful.

“In cutting operations, the process has been attended with some eminent successes, and with some singular failures. * * * *

“It may be accepted, as a fact, that by the process I have suggested, such degree of local insensibility may be produced, as shall enable the surgeon to perform a large number of operations without pain. I mean this, as a general rule, open, as we have seen, to exceptions. * *

“There are certain disadvantages in the process I have suggested, which it would be unfair to suppress. The first disadvantage is, that the

time required for the production of insensibility is long; the second, that some degree of pain is produced during the first stages of the application, which pain, however trifling, destroys the confidence of the patient; and, thirdly, that the apparatus necessary is cumbersome. The production of vesication of skin, to which I have referred, as following the process, is also objectionable. This is produced by the chloroform.

"It will occur to many that the objections here noticed are all removable, and of this fact there can be little doubt. In the present initiatory step, I neither claim for the apparatus, nor the narcotic solutions employed, any particular favor; it is sufficient, at first, to introduce a principle; details may be left to time and experiment."

On the Hypodermic Treatment of Diseases. By CHARLES HUNTER, Esq., late House-Surgeon to St. George's Hospital.—*Braithwaite's Retrospect*, for July, contains a very interesting *resumé* of Mr. H.'s observations on the method of treating disease, by subcutaneous medication. The following extracts will afford a general view of his opinions, experience, and conclusions:—

"Medicinal substances may be introduced into the cellular tissue beneath the skin with the greatest facility, by means of a minute syringe, and so introduced, certain medicines will act with extraordinary rapidity, and the most satisfactory result.

"To distinguish this plan of injecting beneath the skin from the epidermic and endermic, it would be as well, perhaps, to use similar phraseology, and call this the hypodermic method.

"Dr. Alexander Wood, of Edinburgh, has long employed the introduction of medicines into, and under the skin, in the various forms of neuralgia. To him is due the discovery of injecting narcotics into the tender spots of the neuralgic part, or tissue, whichever it happens to be; the belief of Dr. Wood being, that the *localization* of the remedy in the neuralgic part is the cause of the success which attends his practice.

"I have tried Dr. Wood's treatment and localization of the narcotic injection to the neuralgic part, and found it productive of considerable relief; as, however, I found frequent repetition of the injection in the same spot productive of abscess, I employed the hypodermic injection of other parts of the body, avoiding localization of the injection; and I have found, that the hypodermic injection of the cellular tissue beneath the cutis of any part of the body is quite as striking and as curative in its effects as the injection localized to the neuralgic tissue; moreover, it has these advantages, viz.: that inflammation is less likely to follow, and less pain must necessarily accompany the injection of a sound than an unsound or morbidly sensitive part. * * * * *

"My proposition is, that to produce an immediate or decided effect, no method is more effectual than the hypodermic injection of the cellular tissue. * * * * *

"The following experiments will show with what rapidity medicines, injected into the cellular tissue of the body, will act:—

"*Experiment 1.* I injected a few drops of water, containing one-twelfth of a grain of the acetate of strychnia, into the cellular tissue of a cat; in one minute, it was tetanic, and in two minutes, it was dead.

"*Experiment 2.* I injected half a grain of morphia in the subcutaneous

cellular tissue of a rabbit; it was completely comatose in five minutes, and remained so for hours.

"*Experiment 3.* By the kind request of Dr. Page, I injected half a grain of the acetate of morphia into the arm of a girl, aged sixteen, suffering from extreme chorea of all the muscles of the body; in two minutes, all the muscles had ceased their irregular movements, and in four minutes, the girl was asleep.

"*Experiment 4.* A man suffering from tic-douleureux, was for some time subjected to the hypodermic treatment; he almost constantly slept in from two to three minutes after the dose was injected at night.

"In several cats which I injected with morphia, the first symptoms showed themselves in a very few minutes.

"From the following experimental observations on man and animals, it will be seen, that—

"1. Hypodermic injections act quicker than stomachic doses.

"2. That they produce a more powerful, a more effective result.

"3. That frequently the hypodermic injection is productive of the greatest benefit, whilst an equivalent dose administered by the stomach, is entirely useless, and even prejudicial. * * * * *

"*Tic Douleureux.*—In this affection, I believe that great benefit, if not a cure, generally attends the hypodermic introduction of narcotics, but that the localization of the treatment to the neuralgic part is necessary, I do not believe, as I stated in this journal six months ago, nor have I since then found reason to change my opinion. The following case is to the point:—

"*Case 13. Tic Douleureux.*—A lady suffering acutely from neuralgia of many months' standing, sent for me to employ this treatment. She had taken hyoseyamus, opium, and morphia, internally, with no effect on the neuralgia; but they all, more or less, affected her head. She had also tried the endermic application of morphia. She found the endermic method, which was employed over the part affected, give her more relief than the administration of the narcotic by the stomach; but the effect lasted only a few hours, and she was as bad as ever the next day. The situation of the tic was the side of the face and head.

"I injected a little more than half a grain of morphia into the arm; giddiness came on in three minutes, followed by considerable sickness, and subsequently by sleep. The pain ceased at the time, and has never since returned;* it is now between three and four months since the dose was injected."

* "In Edinburgh, chiefly, and also in London, I am told that the sickness following the injection of narcotics, is often excessive, and has, consequently, caused the treatment to be less adopted than it otherwise would. In all the cases in which I have employed the narcotic injection, I have only once found urgent sickness produced, viz.: in the case given above; and here the cause of sickness may partly be explained, thus—that the patient was a woman of highly nervous temperament, and badly affected by narcotics, however administered. The amount injected has also something to do with it. In the usual way, I think the stomach is saved disturbance and irritation, by the injection of the cellular tissue, (which is the part I always inject;) and for these reasons:—1. That I have so seldom found sickness at all as a consequence. 2. Because in one patient accustomed to 30 or 40 grains of morphia daily, for years, the tympanitic and disordered state of the stomach recovered itself while the hypodermic injection was gone on with, and which never once caused sickness. 3. Because, in one well-marked case, all narcotics administered by the stomach caused sickness, which was never the consequence of an injected dose, which latter, if small, quieted, and if large, caused good sleep.

Martyrs of the Age.—In an article with the above significant title, a writer in the *London Lancet* (August,) graphically discourses on the evils to which some of the poor are exposed in the manufacture of various articles of luxury and necessity. He thus notices the workers in phosphorus:—

“But who does not rejoice in ‘lucifer matches,’ ‘congreves,’ or other spontaneous inflammables composed of phosphorus? Let us go to White-chapel. That classic region attained, let us enter a factory. Strange place it is—in some parts how terribly draughty!—well it is so, or the fumes from the drying matches would be concentrated poison. But what is that miserable, mumbling creature about who is alternately stooping toward a pot, and placing his hand against his jaw? His occupation all day is to set over a pot of melting glue and other ingredients, and to cut sticks of phosphorus into the size of a pea, and to throw them one by one into the glue. And from what does he suffer? Why from incurable disease, or total destruction of his lower jaw-bone. For the sake of employment and at good wages, he begins exposing himself to the fumes of phosphorous acid with a rotten tooth or two in his head. In no long space of time, he is seized by toothache and annoyed by gumboils. Abscesses follow, and his teeth drop out. But he works on, until he has nothing left but ‘a rotting and diseased periosteum, and a jaw-bone as dead and as dry as one might see in a churchyard, for it is not at all like caries or necrosis.’ Can we wonder at what the *Annales d’Hygiène* tells us—that in France laborers at this dangerous employment are dissipated in their habits, irregular in their attendance, and recruited from the lowest class? True it is, the ‘dippers’ in some factories wear sponges before their mouths, and the work-people are required to wash their hands night and morning in a solution of soda. Some careful workmen without bad teeth luckily escape altogether, *if the ventilation be very good*; others are infinitely less fortunate. We have heard of a young man who, laboring under the effects of the fumes of phosphorus, presented himself for examination. Although he had not been engaged in the manufacture of lucifers for eighteen months, he yet smelt so strongly of phosphorus that he impregnated the atmosphere of the room. He had never taken a bath, and, from his extreme poverty, had probably worn the same clothes for eighteen months.”

Adventitious Odontogeny.—An instance of this anomaly is recorded in the same journal for May. It was found by Mr. I. B. Brown in an ovarian tumor which he removed from an unmarried female, twenty-one years of age, who had been complaining from early life, and had never menstruated. The tumor exhibited various other abnormalities; thus—

“A further examination of the removed mass showed it to contain a large quantity of loose hairs mixed with a thick steatomatous matter. Hair were also developed in various proportions over the whole internal surface of the cyst, and in many places were thickly massed together. In the centre of the cyst there was also a development of bone, and more or less perfect teeth.”

Sympathetic Odontalgia.—An interesting illustration of this occurred in an operation for the removal of a slate pencil, "one inch and three-quarters in length," from the orbit of a boy, into which it had been driven by a fall. Dr. F. D. JONES, the operator, states (*London Lancet*, May,) that "there was but a trifling amount of hæmorrhage during the operation, which was performed without the influence of chloroform or any anæsthetic agent; and the bitterest complaint that my little patient made during its performance was, that I was making his tooth ache; and on being asked which tooth was aching, he referred the pain to one of the grinders in the upper jaw, which, no doubt, was caused by the pressure exerted on the deep-seated extremity of the pencil, while endeavoring to remove it, on the infra-orbital nerve which supplies these teeth."

On Discoloration of the Skin and Mucous Membrane by Nitrate of Silver.—In a notice of a somewhat remarkable case of Epilepsy, for the cure of which castration was performed by Mr. Holthouse, without avail, (*London Lancet*, March,) it is stated by Mr. Ogle (*Ibid*, May,) that "not the least remarkable fact connected with the case was the extreme staining of the integument of the entire body, produced by the persistent use of the nitrate of silver. This was of a dark slate-color, those parts which were freely exposed to the light being by far the most affected. This change of color was, however, by no means confined to the surface of the body, for even the mucous membrane of the eyelids, lips, inside of the cheeks, and pharynx, and also the gums, (*except the half nearest to the teeth*,*) were of a bluish-black color. The cicatrices of the various injuries, all of which he had suffered since the use of the nitrate of silver, (for after its disuse the attacks came on more violently than before,) were but slightly colored, as compared with the neighboring parts of the skin.

"The Gorilla.—A Natural Curiosity.—In Africa there is a tribe of huge monkeys known by the name of Gorillas. Their existence has been known to white men for some years, but none have ever been taken alive. They generally live in the lonely retired seclusions of the forests, and the males are capable of coping in fight with the lion. The skull of one is in the Boston Museum, being sent thither from Africa, by the Rev. Mr. Wilson, a missionary. Last year, the body of one was sent from Sierra Leone to Professor Owen, and was packed in a cask of rum. When opened, the body was found to be partially decomposed, but it was taken out to the fields and has been restored and fitted for its place among the other African quadrumanal specimens in the museum. The males of the Gorillas have a horrible appearance; they attain to a stature of five feet, with wrists four times the size of a man's, hands double the size, and they are three feet broad across the shoulders. Their strength is prodigious; one can wrench the head off a man with his hands as easily as a person can husk an ear of corn. Its teeth and jaws are as powerful as those of a tiger, as one has been known to bite through a gun barrel as if it were a stalk of cane. They feed on vegetables, principally nuts and sugar-cane, and are covered with a coat of black hair. The negroes live in consider-

* This coloring by the nitrate of silver of that portion of the gums which is the most remote from the teeth is in marked contrast with that caused by the poison of lead.

able terror of them, and well they may, as they are perfectly fearless and very fierce. The specimen which has just been added to the British Museum is the most interesting natural curiosity which has been secured for a great number of years."—*American Druggists' Circular*.

Paleontology.—"Dr. Leidy noticed a very large tooth, much mutilated, and black in color, which was discovered by Prof. Emmons, in association with ear bones of cetacea, in the miocene deposits of North Carolina. The tooth probably also belongs to a cetacean, for which the name of *Ontocetus Emmonsi* is proposed.

"The tooth is curved conical, and is compressed and fluted laterally. In its perfect condition it has been over ten inches in length, by about four inches in its greater diameter, and two and a half inches wide. It is composed of dentine, with an exterior comparatively thin layer of cement, and an interior comparatively large amount of osteo-dentine. The specimen appears to have lain long exposed to the attacks of living mollusks at the bottom of the miocene ocean, as it exhibits a number of excavations made by pholades or other allied genera."—*Ext. from Proc. Acad. Nat. Sciences, Philada.*

"Solubility of Alkaloids in Chloroform.—This property of the alkaloids, which is one of great importance in a medico-legal point of view, as facilitating toxicological research, has been the subject of further experiments by the eminent chemist, Pettenkofer. He states that 100 parts of chloroform will dissolve 0.57 of morphine, 31.17 of narcotine, 4.31 of cinchonine, 57.47 of quinine, 20.19 of strychnine, 56.70 of brucine, 51.19 of atropine, and 58.49 of veratrine."—*Ibid.*

MISCELLANY.

Dr. WILLSHIRE affirms, (*Lond. Lancet*, May,) that wherever decomposition of organic matter is taking place, there will be a development of "low-types of vegetable organisms." He maintains that "it is of no consequence whether such organic matter, which is undergoing metamorphosis, be composed of 'tartar' around the teeth, of the aphthoid and *muguet* exudations in the mouths of children, of the pultaceous membrane in 'diphtherite,' of the scabs of porrigo, the scurf of pityriasis, or of the pustule of sycosis, etc.; for all animal matter is changing, and new, though lower forms of life, spring up." He furthermore contends that these are a *result* and not a *cause* of the maladies with which they are seen in connection.

In the same Journal, (March,) Dr. LEWIS reports an instance of the return of the function of the lower extremities in a frog sometime after complete division of the spinal cord, and concludes that reunion had taken place between the separated parts. His experience and conclusions are supported by Dr. E. B. SEQUARD, (*Ibid*, April,) who states that he has "seen similar facts in more than twenty warm-blooded animals," and that he has "ascertained that a real cicatrization with reunion of divided nerve fibres had taken place in the spinal cord." He observes that "many facts seem to show that the same thing can take place in man."

According to F. DUNN, V. S., (*Lond. Lancet*,) "mercury, in its various forms, produces symptoms in all animals analogous to those in man, salivation being one of them. Horses are least susceptible to it, though they exhibit very various susceptibility."

Acid Nitrate of Silver is said by M. CROCCQ, (*Ibid* from *France Médicale*), to be superior to the simple nitrate, as it penetrates much better into interstices, and its action, by longer or shorter contact, may, at will, be made superficial or deep. It can be readily neutralized with common salt in solution.

Mr. LOBB related to the Harveian Society, (*Lond. Lancet*, August,) "a case of infantile paralysis, from teething, under one year of age, which had been under the galvanic treatment for ten weeks, with the most marked success." As, however, the case was not complete, the details were not given.

Mr. POLLOCK, in the course of a paper on the "importance of pain as a symptom of disease," which he read before the Westminster Medical and Surgical Society of London, (*Ibid*) "drew attention to various forms of pain often included in the term 'tic douloureux.' One of these conditions frequently depended on a diseased condition of the arteries, and might be severe for some months previous to death, without other evidence of altered structure. He had frequently witnessed this in connection with diseased bone of the face or decayed teeth, and he cited several interesting cases to illustrate the importance of attention to such complications, when long-continued remitting pain affected any portion of the face or head."

Dr. TOLAND affirms (*Pacific Medical and Surgical Journal*, March,) that "milk is the only article, in common use, which does unquestionably counteract the specific action of all the mercurial preparations."

The *Photographic Journal* recommends the use of chloride of lime to remove the stains from the skin made by the nitrate of silver. It should be rubbed well over the stains by means of a wet nail-brush, and the parts washed immediately afterwards with hot water and soap. This should be followed by rinsing in a solution of hyposulphite of soda, which will immediately restore the skin to its original purity.

The same Journal states that Mr. JOHN MOULL, of London, England, has discovered a method of taking photographs by artificial light. This will prove invaluable for obtaining correct impressions of objects of interest for scientific and other purposes.

Chromic acid is a very powerful escharotic, and when sufficiently diluted, is not attended with much pain or reaction. It rapidly dissolves organic matter. According to the *Dublin Quarterly Journal*, (*United States Dispensatory*), "smaller animals, (mice, birds, etc.,) were so completely dissolved by the acid, within fifteen or twenty minutes, that no trace of their bones, skin, hair, claws, or teeth could be discovered."

In a notice in the *Half-Yearly Abstract of Medical Sciences*, of Mr. HUMPHREY'S "Treatise on the Human Skeleton," (which, by the by, is highly spoken of by the reviewers,) it is stated that "instances are mentioned of fracture of the glenoid cavity of the temporal bone by a blow upon the lower jaw, which drove its condyle into the skull."

The *Medical and Surgical Reporter* says, that the "iron thread is believed by many surgeons to be as efficient, if not superior to the silver suture. Dr. SIMPSON, of Edinburgh, always uses the common annealed iron wire, gauge No. 32."

The same Journal states that "very thin perforated elastic tubes are extensively used in England and France, instead of tents of lint, sponge,

etc. They keep the orifice in an abscess open, and effect its complete drainage. They are readily introduced, and produce no irritation."

In the *American Journal of Medical Sciences*, for July, Dr. R. A. KINLOCH, of Charleston, gives an account of a somewhat rare compound and oblique fracture of the lower jaw of the right side, from which "all the molar teeth were absent," and in which "the alveolar process of the bone above the injury had undergone absorption." After trying various means to secure coaptation and reunion without success, he finally resorted to the expedient of cutting down upon, and drilling through the bone, and passing a ligature of silver wire, which effectually secured both coaptation and ossific reunion.

Mr. RICHARD COMMACK, Jr., affirms (*Braithwaite's Ret.* from *London Lancet*,) that a compound of a tablespoonful each, of chloride of sodium and vinegar, in a teacupful of hot water, excels all other applications in diphtheritic inflammation of the mucous surfaces. It relieves the breathing and fœtor, and causes the ulcers to heal. It may be applied by injection, gargle, or otherwise.

Larch bark is highly recommended by Dr. S. L. HARDY, (*Braithwaite's Ret.* from *Dublin Hospital Gazette*,) as a tonic and styptic in "discharges from mucous surfaces," and "in hæmorrhage attended with debility," such as purpura, etc. Dose of ext. gr. j. to gr. v.; of the tincture from fʒss. to fʒijj.

Dr. J. KNEELAND, of Onondago, N. Y., states, in the August number of the *Journal of Materia Medica*, "that the leaves and root of the *Triosteum Perfoliatum*, or 'fever root,' when chewed, stimulate the salivary glands for a long time, and produce a temporary salivation, very analogous to that caused by holding iodine and its preparations for a moment in the mouth." Also, that the fresh root, when bruised and moistened with a little water, and applied to the surface, is very potent in resolving congestion and inflammation.

The *Medical and Surgical Reporter* states that "the *Cincinnati Lancet and Observer* reports the case of a lady who described the operation of having a tooth extracted under electric anæsthesia as indescribable misery. She complained for three weeks afterwards of 'a strange vibratory sensation, commencing at the cervical vertebræ, and extending to the extremities.'"

"Tetanus is of more frequent occurrence in punctured than in deep, wide wounds."—(PANCOAST, *Medical and Surgical Reporter*.) To prevent local and constitutional disturbance, and guard as far as possible against this affection in all cases of injury, narcotize thoroughly the wounded part by opium, aconite, or other sedative, and keep it in that condition until all irritation has disappeared. Whenever there is much general excitement or systemic impressibility, the internal administration of anodynes will also be necessary.

From an examination of the "Comparative influence of the male and female parent upon the progeny," Mr. THOMSON, of Perth, Scotland, concludes (*Atlanta Medical and Surgical Journal*, from *Virginia Medical Journal*), "that, in the lower animals, and in man also, the influence of the male is greater than that of the female parent in the transmission of the skin texture to the progeny." In view of the fact that the teeth are regarded as a part of the dermal structure, it is important to determine

the relative influence of the parents in transmitting these organs. Much may be done toward settling this, as well as the general question of transmission, by making it a subject of discussion in dental societies and journals.

Mr. CLEMSON, a correspondent of the *Scientific American*, who has had much experience, says that steel may as certainly be deteriorated by a too long-continued, or a too often-repeated moderate heat, as by overheating. Also, that "with the exception of files and sheet steel, clear water is the best hardening medium for about all kinds of tools."

Another correspondent of the same journal, affirms that one of the simplest means for disinfecting ships, hospitals, and other places, is to burn chloric ether therein. The ether is decomposed, and chlorine evolved. This may be effected by an ordinary fluid glass-lamp.

Mr. HUTCHINSON states (*Braithwaite's Retrospect*, July,) that "chlorate of potash, used freely as a mouth-wash, acts just as well in ulcerative stomatitis (a diphtheritic affection) as when given internally." Chlorate of soda and muriate of ammonia are also very useful, both generally and locally, in similar conditions.

Mr. W. H. BUBB succeeded (*London Lancet*) in removing cancrroid tuberculosis of the lip, of fourteen years standing, with acid nitrate of mercury, applied weekly, after chloride of zinc and other escharotics had failed.

The *Scientific American* (August 13) contains an interesting article on the soluble silicates, the substance of which, if space permitted, we would transfer to our pages. These silicates may prove of practical importance for dental purposes; as, for instance, the following, or some similar compound, for filling teeth: "The oxyd of zinc and soluble glass combine with great energy, and form a paste capable of being rolled out and made into sheets to cover substances, such as wood," etc.

The same journal states that M. SERRES has brought forward a substitute for gutta percha in the form of a gum, "obtained from the *Acros Balata*, (a tree that grows wild in the West Indies,) which is more elastic than gutta percha. It is formed of the juice of the balata; is of a spongy rose-color, and possesses the quality of softening at a temperature some degrees higher than that at which gutta percha becomes plastic."

Dendrosophy, or the Teachings of a Tree.—Mr. HARLAN D. COULTAS, one of those original thinkers and pioneers of truth, which are comparatively so rare, and yet so useful in promoting the higher interests of humanity, has been for some time engaged in publishing in numbers a work entitled "What may be Learned from a Tree." After reaching the fourth part, which has just been issued, he is obliged to suspend his labor in consequence of the want of means to continue its publication. This book is well worthy of support, and its author of encouragement, as it presents enlarged views upon the subject of dendrology, and exhibits its relations and analogies with human life in its various aspects—physical, social, and political. It will richly repay perusal, and is well worth the trifling sum asked for it, which is twenty-five cents per number, or one dollar for the whole. We are authorized to state, that the publishers of this journal will receive subscriptions from abroad, and will see that the book is sent in return.

THE
DENTAL COSMOS.
NEW SERIES.

VOL. I.

PHILADELPHIA, OCTOBER, 1859.

No. 3.

ORIGINAL COMMUNICATIONS.

REGULATING THE NATURAL DENTURE.

MESSRS. EDITORS:—

Having occasionally met with cases in which I thought injudicious treatment had been practiced in extracting one or more of the six anterior teeth, for the purpose of correcting an irregularity, a few lines on the subject may not be out of place in "THE COSMOS."

I would not say that under any circumstances it would be improper to remove one of these teeth, but I believe, as a general rule, and one acknowledged by all intelligent dentists, they should be preserved, even at the sacrifice of the more posterior ones. The reason for this, in addition to preserving the beauty of the countenance, is the relative durability of the teeth. Mr. Tomes, whose extended experience in the Middlesex Hospital, and world-wide reputation as a dental author, makes him valuable authority on this subject, gives us the following statistics: "Under the age of fifteen, the respective liability to loss from caries runs in the following order—Central incisors, 2 per cent.; lateral incisors, $3\frac{1}{2}$ per cent.; canines, $2\frac{1}{2}$ per cent.; first bicuspid, 7 per cent.; second bicuspid, $8\frac{1}{2}$ per cent.; first permanent molars, $68\frac{1}{2}$ per cent." He adds, "Supposing then, a sound tooth must be sacrificed, there can be but little doubt that we shall do wisely in selecting the first permanent molar." The above is doubtless correct, and would be all that is necessary, were it not that a large proportion of our patients, applying for correction of irregularities, where there is much disarrangement of the teeth, are between the ages of seventeen and twenty-five, and my experience has taught me that, if between these ages, the first permanent molars are found to be perfectly sound, or at most to be but slightly affected with caries on the masticating

surfaces, that we may rest assured they will prove more permanent than either the first or second bicuspid, and, owing to their broader masticating surface, much more serviceable. Under these circumstances, I should have no hesitation in removing one of the bicuspids in preference to a sound molar, which one, of course, depends upon their condition; if both are equally sound and well-formed, the second is generally preferred, though I see but little choice where their physical condition is the same. And I am of the opinion that it is often better to extract the first, particularly when its removal gives the desired space just where it is required. This, I think, is more preferable than making the operation tediously long and painful, by having to force it back into the space left by the removal of the second.

If young men in the profession would be careful to observe a few things before attempting to remedy mal-positions of the teeth, they would save themselves some moments of regret, and probably some censure. 1st. The age of the patient for whom the operation is to be performed. 2d. The relative durability of the teeth at that age. 3d. The physical condition of the teeth to be corrected, and the adjoining ones. 4th. The manner in which we have the jaws articulating. The reasons for observing the first three are obvious from what has already been written. The fourth I consider of equal importance; for, if we find irregularity of the upper anterior teeth, with the lower ones occupying their normal position by closing entirely posterior to them, the course to be pursued is quite different from where we have them closing anterior to the upper ones. In the former position, even though we should correct the irregularity by enlarging the arch, and preserving all of the teeth, we should have the under ones so far posterior to them, that it would be almost impossible to keep the upper ones in the regular position to which they had been forced by means of plates, springs, ligatures, etc.; for such is their tendency to fall back into the places assigned them by nature, that the moment our mechanical appliances are removed, we should have them fast assuming their former position. I think it might be set down as a rule in practice, that where we find irregularities of the upper anterior teeth with the jaws preserving their natural articulation, it is useless to spread the arch (unless it were both practical and essential to bring out the under ones proportionately to preserve the symmetrical contour of the face) in order to correct the difficulty, but resort at once to the forceps for the purpose of procuring the desired room. If we have irregularities in articulation, either complete or partial, then another course of treatment may be necessary. That must be left to the judgment of the operator; and if he have the ingenuity and perseverance of your able contributor, Dr. Westcott, he will be at no loss for means to accomplish his ends.

In conclusion, let me say, that every dentist who has not already Mr. Tomes' "Dental Physiology and Surgery" in his library, will do well to procure it, and read what the author says on the relative durability of the teeth.

C. N. PEIRCE.

CREOSOTE AND COTTON IN FANG FILLING.*

BY J. FOSTER FLAGG, D. D. S.

"EXCEPTION BEING TAKEN TO THE LEAVING OF COTTON IN THE FANG.—Dr. Geo. Watt, of Xenia, Ohio, stated that the cotton would be converted into the carbonate of albumen, an indestructible compound, and he did not object to its use."—*Extract from Report of Convention of 1859.*

The question as to the absolute utility of creosote in fang filling, and the best method of its application, is what I propose briefly discussing in the present paper, and I would state in the commencement, that the views which I shall advance are entitled to whatever weight may be considered due to an experience of *seven years*. I believe that the practice alluded to was first adopted, and after a sufficient experience to warrant, promulgated by my father, Dr. J. F. B. Flagg, about the year 1850, and has been successfully employed by him up to the present date. At his suggestion, I have also adopted the plan, and gradually, as I had evidence of its value, I have extended its application until I can say that for the last *four years* I have never filled a single fang without first placing within it a pledget of cotton saturated with creosote, and the result practically is, that I have yet to be cognizant of the *first case* of extirpation of the pulp, which has been anything but perfectly satisfactory. I have no "per cent." in such cases.

It would be impossible for me to enter into even a tolerably full consideration of this subject within the limits of a *periodical* article, and it shall, therefore, be my aim to offer suggestions, which may be worked up to the good of others by reflection, rather than to attempt an exposition which must necessarily be either vague or extended. Tersely, then, what is the cause of failure, either sooner or later, in cases where extirpation of the dental pulp and filling of the canals and cavity have been practised? It is periosteal difficulty arising either from applications for the purpose of destroying the vitality of the pulp, or from the mechanical irritation induced by the necessary manipulation for drilling, preparing the cavity, and consolidating filling, *which is an almost immediate sequence*, or,

* This paper was written during the absence of my father from the city. Since his return, he informs me that some three years ago he removed a plug which he had inserted some *nine years* previously, and found the cotton perfectly pure, and strongly impregnated with creosote.

it arises from the ultimate disintegration of, and consequent evolution of mephitic gas from small thread-like portions of animal matter left in inaccessible positions within the fangs, which invariably requires *time* for its development, the length of which, in my own experience, is from six months to eight years, but which generally pronounces itself in about eighteen months. The reason for this slow disintegration will be perfectly apparent when we reflect upon the secluded position occupied by the devitalized animal tissue, and remember that it is dependent upon oxygen for its putrefaction, and that the oxygen has to be brought to it through the medium of the circulation. This also accounts for the difference in time of development of continued symptoms, and so accurately is this the case, that, taking carefully into consideration the temperament, health, age, etc., of any given individual, one can pronounce very closely as to the time of filling a tooth, if the result has been trouble accruing from this last mentioned condition of things.

Now, what are the indications which we wish to combat? 1st. Irritation from arsenical applications. 2d. Irritation from mechanically exciting causes. 3d. Irritation from disintegration of animal tissue.

The first I have found to occur most frequently in those individuals who are predisposed to the erysipelatous form of inflammatory action, and I have found it yield readily to the alternate application of hydrated sesquioxide of iron, as an antidote, and ol. creosote as a stimulant; stimulants being indicated in such diathesis.

The second most frequently occurs in those predisposed to phlegmonous inflammation, and here we require general or constitutional counter-irritation and local external antiphlogistic treatment, in the employment of chlo. potas., plumb., acet., etc., etc., and the slightest possible internal stimulation, sufficient to dilate gently the capillaries, and thus prevent congestion, the which we find in a small pledget of cotton about the size of a pin's head, moistened with creosote, and placed high up in the fang or fangs of the tooth under treatment.

The third existing cause of irritation develops itself alike in patients of all ages, temperaments, and conditions; it being simply a question of time as to when trouble will ensue. In these cases we use the creosote, even more decidedly than in the others, as a prophylactic. Having no better antiseptic agent, it only becomes a consideration as to the most efficacious method of using it, and this seems, from practical demonstration, to be the pledget of cotton; placed in the fang as high as possible, and in immediate contact with the trifling amount of pulp which remains, it is then covered or capped by the first piece of foil introduced for the fang filling; this being condensed, acts upon the yielding cotton to compress it, and this forces powerfully the creosote into the unreachd thread-like canal.

As pain is sometimes induced by this force, the cause of which every dentist will understand, it is advisable to make slow, gentle, but firm pressure in compacting the first piece, after which the fang can be filled solid without difficulty.

As it sometimes occurs that quite a portion of pulp has to be left, in consequence of inability to obtund sensibility, I sometimes combine tannic acid with creosote. Case from note book:—

Oct. 14, 1858.—Miss McK., aged nineteen, temperament, nervo lymphatic; lower molar, right side. Made arsenical application twelve hours; sensibility not destroyed in canals. Second application, twelve hours; sensibility half the distance of each fang; body of pulp very large. At suggestion, tried alum and tinct. opii, twenty-four hours. Same as before. Placed pledget of cotton, saturated with creosote, thickened to a paste with acid tannicum, in each fang, and filled.

Nearly a year has elapsed without the slightest trouble ensuing; but two more years must have passed with the same result, ere I should consider myself warranted in counting it a successful case.

In regard to the change into carbonate of albumen, upon which would naturally be based a chemist's opinion of the fitness of cotton as the vehicle for the application, I would merely state that I have removed plugs of four years' duration, for the purpose of examination, and though, what I found, might have been, chemically, "carbonate of albumen," yet it appeared to be nothing more nor less than the cotton of former days—sweet, clean, and strongly creosoted, both to the smell and taste. This was under gold plugging; under amalgam plugs, the cotton becomes discolored, just the same as the tooth does; but I do not find that, practically, this discoloration does any harm, or militates in the slightest with the success of the operation.

EXPANSION OF PLASTER OF PARIS.

BY T. L. BUCKINGHAM, D.D.S.

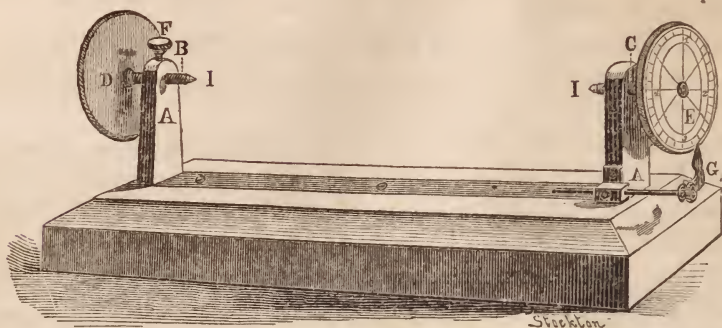
MESSRS. EDITORS:—

Allow me to give the results of some experiments that I have been making, to test the expansion of plaster of Paris.

It has been known to every person who used plaster, that it would expand when mixed with water, and allowed to set, but the amount of expansion, so far as I know, has never been determined. The instrument I used to measure the expansion I shall call a micrometer. A description of it will enable the reader to judge of the correctness of the experiments.

A, A, are two upright pillars of brass, rising from a brass bed plate, which is inserted into a block of wood for a base. (*B, C,*) are two steel screws, with points, (*I, I*). (*D, E,*) are two circular brass plates, used for

turning the screws. (*F*) is a small screw to tighten screw (*D*) to prevent it from turning, while the instrument is in use. (*G*) is an index made to



slide in or out, so as to follow the screw (*C*). The screw (*C*) is cut with seventy threads to the inch, so that it would have to be turned that number of times round to advance the point that distance. The plate (*E*) attached to it, is divided into thirty-two equal parts. Now by turning this plate one of these spaces, the point is made to advance the $\frac{1}{32}$ of the $\frac{1}{10}$ of an inch; or, to reduce it to a simple fraction, the $\frac{1}{320}$ of an inch. The screw (*D*) has a coarser thread; it is only used to set the instrument to the object to be measured.

To test the expansion of plaster with this micrometer, a piece of wood was arranged between the upright pillars about three-eighths of an inch below the points of the screws; two other pieces of wood were adjusted on this, so as to form a trough. Two brass plates, three-fourths of an inch by one inch in size, with small pieces projecting from the centre, were now arranged with these projecting pieces against the points of the screws (*I, I*). The distance between these plates was just five inches. The trough was now filled with plaster mixed with water to the consistency we use it for making casts, and the changes that took place noted every five minutes. At the expiration of the first five minutes, the plaster having become sufficiently firm to keep its form, the screw was then tried, when it was found it could be made to advance three of the spaces, showing that the plaster had really contracted. I mention this fact, for it invariably took place in all the experiments. I attributed it to the particles settling together before the chemical combination commenced. The screw was now reversed one revolution, and at the expiration of ten minutes, it was screwed up again, but it would not advance to the first position by one of the spaces. In this way the expansion was tested at fifteen, twenty, and twenty-five minutes, and found to be respectively five, nine, and eleven of the spaces.

These experiments were made with plaster, poured into a wooden trough, to which the plaster becomes firmly attached, requiring considerable force to remove it. I was, therefore, led to suppose that the adhesion to the wood might prevent it from expanding as much as it would, if it could be made perfectly free. I was fully confirmed in this opinion, when I found that when the plaster was loosened from the wood, it immediately expanded to thirteen, and at the expiration of three hours, it expanded to twenty-four of the spaces, or three-fourths of a revolution.

My next experiments were made with paper, folded so as to line the trough. The paper when wet by the plaster, would offer little or no resistance, and it also prevented the plaster from adhering to the wood, so that I was enabled to remove the sides of the trough, as soon as it had set sufficiently to keep its form.

These experiments showed that it first contracted three spaces, and then expanded in ten, fifteen, twenty, and twenty-five minutes, respectively, five, thirteen, twenty, and twenty-four of the spaces, and expanded afterwards to twenty-eight in three hours. All the distances were measured from the starting point, and do not include the spaces which the plaster first contracted. The results stated here show that when plaster is poured into an impression or mould, where it has much resistance to overcome, it will not expand much; even running it on a smooth board interferes very materially with its expansion, but when it is liberated from its confinement, it will go on expanding. In all my experiments, the expansion was very nearly the same, varying not more than three or four spaces.

Let us now examine and see what effect this amount of expansion would have on the fitting of a plate in the mouth, even allowing the plate to be made to fit the plaster-cast perfectly, which is impossible, unless we use some alloy to make the metallic casts, which will not contract in casting.

The greatest amount of expansion that took place in any of the experiments, was one revolution or the $\frac{1}{70}$ of an inch, and here the plaster was five inches in length. If we take half of this, ($2\frac{1}{2}$ inches,) which is a greater length than it is across ordinary casts of the mouth, the expansion would only be the $\frac{1}{140}$ of an inch. Now this distance is so small, that we must have a more minutely divided scale to measure it, than we ordinarily use.

Let us take a piece of gold plate of the thickness of twenty-eight of the wire gage. This is by measurement the $\frac{1}{56}$ of an inch thick. The $\frac{1}{140}$ of an inch is little more than the one-third of the thickness. Surely this amount of expansion could not have much effect on the fitting of the plate.

THE PROFESSION IN ENGLAND.

[FROM OUR LONDON CORRESPONDENT.]

As the month of October approaches, professional interest is aroused with regard to the proceedings of the forthcoming session of the College of Dentists. I have just learned that the more important arrangements for the session are completed, and I have much pleasure in communicating the information which has reached me, (and which may be relied upon as correct,) to the readers of "THE DENTAL COSMOS."

Three courses of lectures are to be given at the College, which will be free to members; one course by Professor Erichsen, F.R.S., one by Dr. Richardson, and one by Mr. Hulme. The subjects have not yet been announced, but it will be at once apparent, from the names of the lecturers, that a rich treat is in store for those in our profession who can appreciate practical lectures of the highest class. Four conversazioni will also be held in the course of the session. At the first, an inaugural address will be delivered by the highly esteemed and talented President, Mr. Waite; and at each, various short papers will be read, and objects of interest exhibited. Members will have free admission to the conversazione.

The *Metropolitan School of Dental Science*, in connection with the College, will be opened on Monday, October 3d, with an introductory address by Dr. B. W. Richardson, Professor of the Elements of Anatomy, Physiology, and Pathology. On the same day it is proposed that the professors of the school, their pupils, and friends, dine together, when a most agreeable *reunion* may be expected. There is another school of dental surgery announced, but as yet no information has been afforded with regard to its opening. In order to give greater effect to the authority of the College of Dentists, it is understood that a charter of incorporation will be shortly applied for.

The friends of professional progress (and I know that such abound in the United States) will be glad to learn that there is now every probability of the College of Dentists fully announcing the expectations of its most sanguine supporters. All the best men, who for a time withheld their support, such as Robinson, Waite, Merryweather, Norman, King, etc., are at their posts again, and doing good service. With regard to the opponents of the College, I have nothing to say, except that they grow "smaller by degrees, and beautifully less."

I may incidentally mention that, in the organ of the opposition to the College, there appeared, a few weeks back, some remarks impugning the accuracy of statements contained in a letter of the London Correspondent of the *Dental News Letter*, published in April. The statement referred to, was to the effect that the Dental Hospital was not visited by many

patients. Your humble servant was the correspondent who made the statement, and as he is not given to falsehood, he at once republished his communication to the *News Letter* in the *London Dental Review*, and challenged the editor of the *Journal of Dental Science* to prove that a single inaccuracy was contained in the letter. No response was given to the challenge. Probably the editor thought it undignified to notice the matter further, especially as he could not do so without bringing his paper into further trouble. Still, when a charge of inaccuracy is made, it ought to be *established*, or, if not capable of proof, it ought to be *withdrawn*—one or the other. When neither of the above courses is adopted, a just contempt cannot but be entertained for the individual making the charge.

Writing of the *Dental News Letter*, I am reminded, of many regrets, that it is to be a thing of the past. The *News Letter* has always been a favorite here, not only because of its varied interesting contents as a scientific periodical, but as a political organ, advocating the most rational views of professional organization. The regret, however, felt at the discontinuance of the *News Letter*, is materially lessened by the appearance of "THE DENTAL COSMOS," the first number of which first rate periodical has come duly to hand. There is but one opinion as to its merits, and it is a pity that the proprietors do not establish a direct agency in London, so that the many could *readily* procure the monthly numbers, and thus spread the interesting matter contained in its pages through the British portion of the profession generally. There is a widely felt wish in this Metropolis, that ere long a convention of American and British dentists should be held. Doubtless you have heard, ere this, that a communication on the subject was received from the Council of the College of Dentists, by the President of the American Dental Convention, held last month at Niagara Falls. May the sentiments therein contained be speedily consummated!

The Vulcanite Base attracts a great deal of attention in England, and all sorts of patents have been taken out in regard to it, but they appear to be all invalid, as dentists take very little trouble about licenses. If a patented apparatus suits one, he buys it, license and all. If an unpatented apparatus suits another *better*, he buys it, without any trouble or expense about a license, and ten to one if the latter purchaser is interfered with. Although the vulcanite is a good deal used, *gold* is yet a valued friend, and I am not sure that both the profession and the *public* will eventually find out that the auriferous metal will not be superseded as a base for artificial teeth.

In literary matters, there is nothing new to communicate at present, although I may mention that the American correspondent of the *London Dental Review* will no longer have to call attention to the lack of original matter in its pages, as I am told there is now great difficulty in finding

room for the regular business matter, as good writers have liberally come forward, among whom will be found Mr. Robinson, Mr. Hulme, and others.

You have doubtless received a copy of the report of the Committee on Electricity in Dental Operations. The conclusions arrived at in the report have been fully confirmed by subsequent practice. Almost every one with whom I come in contact has abandoned the employment of electricity in operations as utterly worthless.

I shall hope, from time to time, to furnish you with early items of professional intelligence, but you must not expect more than an outline, as this will be filled up by the English periodicals, which must soon follow my letters. The *full* particulars of the arrangements of the College of Dentists, and also those of the Metropolitan School of Dental Science, I shall try to send by the "Great Eastern" steamship, appointed to leave for Portland on the 29th inst. This great ship will, I hope, be the first move towards bringing us into a system of communication more rapid than at present. As the mail is about starting, I must conclude by expressing my most cordial and sincere wishes for the complete success of "THE DENTAL COSMOS."

LONDON, September, 1859.

AMALGAM FILLINGS.

Much has been written, and more said upon the propriety and impropriety of using amalgam fillings; but it is not my intention in this article to rehearse what has been published pro and con on the subject. I shall merely give my mode of preparing and using amalgam.

We meet almost daily with teeth so much decayed that it is impossible to fill them with gold foil, owing to their inability to bear the necessary pressure. Under such circumstances, if certain sequences could be obviated, every conscientious practitioner would acknowledge amalgam to be the *desideratum*, long sought, for filling "frail teeth."

The objections to amalgam as generally used, are too obvious to require any arguments to prove here their existence; but that it should be discarded altogether as a material for filling teeth, because it has proved injurious when applied directly to the dentine of the tooth, is too hasty a condemnation of its use; while, on the other hand, the practice of placing it in direct contact with the dentine, (knowing the almost certain deleterious effects produced by the absorption of the mercury,) cannot, I think, be too strongly condemned.

Through a series of experiments, commenced some years ago, I arrived at a plan, by which I believe this difficulty is obviated. It is one that,

having satisfactorily tested, I adopted, and here present for the consideration of the profession, trusting they will test it by actual experiment, and make known the result.

The following is my manner of preparing and using amalgam; believing, the smaller the number, the better, I use only two metals, viz.: pure mercury and pure silver; the former, having been carefully distilled, is kept in a well-stopped bottle; the silver is first refined by what is known as the "wet process," then melted in a crucible, after which, by means of a finely-cut file, (that had never been used for any other purpose,) the button is reduced to filings, when all particles of iron or steel that may have become mixed with them, are removed by a magnet, and the filings are thoroughly washed in alcohol, dried, and placed in a separate bottle.

In order to illustrate the *modus operandi*, I will take an inferior molar, having a large crown cavity, opening from the grinding surface and exposing the nerve. We will suppose the tooth to be so much decayed, that when it shall have been excavated, very little of the walls of the cavity, besides the enamel, will be left. The vitality of the nerve is first destroyed; then, by the use of small and delicate instruments, made expressly for the purpose, the entire membrane is removed; when this is done, the nerve cavity is carefully washed out, dried, and stopped with cotton. The crown-cavity is now excavated and otherwise prepared for the reception of the filling.

After the tooth has been prepared in the above manner it is left for a few days, until all inflammation subsides, and then the operation is continued thus: having ascertained that both cavities, the nerve and the crown, are perfectly clean and dry, the roots are filled up, even the floor of the latter, in the most careful manner, (making sure that the filling is compact,) with Abbey's gold foil, No. 5, and finished with a burnisher. The crown cavity is again stopped. The amalgam is now prepared by placing a few globules of mercury in a small wedgewood mortar, adding to it a sufficient quantity of the silver filings, and rubbing then briskly together until they are thoroughly incorporated, when the mass is well washed in alcohol, after which the latter is decanted, and the amalgam pressed in a chamois skin to deprive it of any excess of mercury.

The operation of filling is now resumed, by first covering the floor, and lining the walls of the cavity with several thicknesses of Abbey's gold foil, No. 5; when this is done to my satisfaction, I fill in with the amalgam, by pressing it against the walls and gradually filling in the centre until the cavity is full. It is inserted in the form of little pills, each one being tightly packed in its place before another is introduced, applying all the pressure which the nature of the material will admit, and using instruments that have been cut on the points to make them rough.

The patient is now directed to avoid using that side of the mouth for a day or two, and to call again at the expiration of that time; when the filling is to be finished in the same manner, and with the same care as a gold one.

Within the last four years I have, in the above manner, filled some sixty teeth; and all that I afterwards examined, looked as well then, as when placed there, showing no discoloration, or any other of the bad effects generally resulting from the use of mercurial fillings.

J. D. HARBERT.

[We publish the above article on the use of amalgam, because it is a *fair* statement of *bad* practice, and we are willing that both sides of this *one-sided* question shall be heard. We did not believe that any one in our profession, who was familiar with the history of the writers on amalgam, could venture to stake his reputation on so doubtful a foundation. We have never used it, nor have we ever doubted that some dentists have rendered it useful in their private practice, but we did not suppose that any one would venture to publicly advocate it after so many able advocates have failed to sustain it.

J. D. W.

AN INTERESTING CASE.

RESTORATION TO THE MOUTH, AND HEALTHFUL RETENTION OF A TOOTH, AFTER BEING CARRIED IN THE POCKET A WHOLE DAY.—Drs. White and McQuillen, will, perhaps, recall to mind the following case, which, at the time of occurrence, I mentioned in the course of conversation to both of them.

Mr. —, a young gentleman, twenty years of age, temperament closely approaching the sanguine, applied to me late on an afternoon in the early part of last spring, for the purpose of seeing about the insertion of a superior central incisor tooth. Remarking, on examination of the parts, that the loss of the original member was of very late date, the patient informed me that the tooth was quite sound, and had been extracted before breakfast that same morning, through the ignorance of a person into whose hands he had been so unfortunate as to fall. The tooth, after he had rumaged in his pocket, among the usual furniture of that receptacle, for some five minutes, was produced. Its dried, dust-covered state I need not notice. Feeling in a somewhat experimental mood, I suggested that if he was willing to take the probable discomfort, and a risk which offered about one chance out of the hundred, I would attempt its restoration. The chance was readily seized.

The tooth was then placed in a glass of tepid water, and permitted to remain there, softening the periosteum, whilst I proceeded to the prepara-

tion of its alveolus. This was effected by cutting away all the half-formed granulations, and cleansing the cavity, through repeated syringings with cold water. Having all ready, I next passed a pledget of cotton, saturated with the tincture of iodine, to the very apex, holding it there, perhaps, a minute. The tooth was now thrust quickly to its place, and after the momentary shock, I proceeded to its retention, by attaching it through the aid of ligatures, to neighboring teeth. The operation being thus completed, quiet and a strict antiphlogistic regimen was directed.

Two days after—No disposition to inflammation.

Two days later—A tendency in the part to running down; restored to him his usual diet and mode of living.

Three days later—Tendency to degeneration increasing, prescribed—

R—Tict. Ferri chl., - $\bar{3}$ ss.
 Quinia Sulph., - - $\bar{3}$ i.—Mix.

Ten drops to be taken every three hours; the patient to eat freely of well-seasoned food.

A week later—Very decided change for the better; changed the ligatures; tooth quite loose, but promising well; patient made no complaint. Ordered the former prescription to be discontinued, and Vallet's mass to be substituted; this more particularly, on account of the blackening of the teeth by the muriated tincture.

A week later—Tooth sufficiently firm to permit of removal of the ligatures. The gum, however, had fallen very considerably from the neck, giving an ugly, unhealthy look to the parts. For the correction of this, I resorted, with complete success, to an operation I have long practiced. A little rim of the festoon was cut away every few days, and granulation provoked, through the stimulation of iodine. (I might remark that judgment must be exercised in this treatment, or the irritation may induce unhealthy inflammation, and the part, instead of being improved, made much worse.)

Two weeks later—The tooth quite firm and healthy-looking; patient anxious to start away on a summer tour; was dismissed with cautions as to what might probably ensue, should he be so unlucky as to take even a slight cold.

September 24—Mr. — having returned, came this morning to see me. The tooth looked as healthy as any in his mouth; has given him no discomfort; have concluded to drill into the nerve cavity, to prevent discoloration. This, by the way, it would have been much better to have done when I had the tooth in my hand, but at the time it did not strike me. I, of course, now run some risk, but trust, through light manipulation, for success.

I note the case for publication, because it is very interesting, in a surgical point of view, and because I know of no other on record where a

tooth has been successfully replaced in its socket, after having been out such a length of time. It certainly denotes a peculiarly insusceptible state, combined with great recuperative power, in the particular individual.

JAS. E. GARRETSON, M. D.

The above is a very interesting fact, but we doubt whether the systemic treatment was the cause of the success of the case, as transplanting teeth has been successful without it.

J. D. W.

PROCEEDINGS OF DENTAL SOCIETIES.

PENNSYLVANIA ASSOCIATION OF DENTAL SURGEONS.

REPORTED BY GEO. T. BARKER, D. D. S.

A monthly meeting of the Association was held on Tuesday evening, September 20th.

The President, Dr. Dillingham, in the Chair. Present, Drs. Fouché, McQuillen, Buckingham, Harris, Flagg, Garretson, Roberts, Peirce, Barker, Goodwillie, Woodnut, Fitch, McGrath, Hopkins, and Harbert. The subject of discussion being

“CONSTITUTIONAL CAUSES OF CARIES,”

was opened by Dr. Garretson, who said, “In considering the constitutional causes of caries, we consider simply constitutional vitiation. I repeat the remark made at our last meeting, ‘That two-thirds of the cases presenting themselves, have had decay impressed on them, or such impression is being made at the time presented, by some derangement of the vital forces.’ I have only to call your attention to the effect on the dental organs of the various exanthemata; so marked are some of these cases that we have not unfrequently pits or fossa, consequent on variola. Every day’s experience multiplies the proof that dental caries is no less a constitutional disease than are the thousand others that flesh is heir to. I would not be understood as affirming that every case of dental caries depends on this constitutional derangement, than I would declare there existed no such thing as a traumatic caries of bone, or a phlegmasia, the result of some local irritant, but I would be understood as affirming the belief that in the mass of cases, dental caries is only half treated when alone locally treated. For example, a person labors under dyspepsia, the constantly recurring acid eructations at length mark their decomposing influences on the limey frame-work of the teeth. Can we hope to save such teeth through means afforded by the manipulative department of the profession? You might as reasonably hope to save silver from nitric acid

through the agency of a pyramid of crystal gold built upon it. The dyspepsia must be cured, or you will never cure the teeth.

“ A young girl is sent to you laboring under chlorosis and most defective teeth. Could you expect to save such teeth without first counteracting the anæmia which is destroying them? Might you reasonably expect to restore the integrity of a set of teeth loosened from too free mercurial exhibitions, without considering the existing pyalism? I look on dental caries as I would look on phthisis, and as I would be influenced in the treatment of the latter disease by attending and influencing circumstances, so in the former, I could only act as conditions might direct. It seems to me, that the most important matter is, that we should fully appreciate caries as a result of some disturbance of the *vis vitæ*. I feel sure I have oftentimes done much more good through a well-ordered prescription, than I could have done by the best manipulative performance. * * * *
Of the wonderful physiological process, the eburnation of dentine; I say physiological process, because, in opposition to the generally received opinions, I have convinced myself that it is no more a mechanical process than is the sprouting forth of granulations, or the formation of osteo dentine. I have lately been hearing some wonderful effects of phosphoric acid taken internally as a remedy for periostitis; the good effect is said to be at once perceived and to be permanent. Now, this is certainly a new thing to me. How phosphoric acid, which is a powerful general stimulant, can cure periostitis, particularly if it should be of the acute form, is entirely beyond my comprehension. Can any of the members give us further light on the subject? I would direct attention to the sluggish condition of the salivary glands, the secretion of which, failing to hold the limey constituents in solution until passed into the mouth, permits of its deposit around the necks of the teeth, and their consequent loosening and destruction. I would call attention to the green deposit found on the teeth of persons of lymphatic temperament, and which is so destructive to the enamel; the green substance is the offspring of some constitutional vitiation; as sordes is consequent on the typhoid state, we do not trust to instruments for the removal of sordes. I might allude to a condition of the mouth unpleasantly familiar to all of us; and I think I can offer as a contribution a remedial agent, which will not be found without its value; patients of the nervo-sanguine and sanguine, present themselves not unfrequently, with teeth, the necks of which are covered with a white pasty deposit, a deposit which, if we did not know better, we might judge to exist from lack of cleanliness. A similar deposit is observed where there is loss of tone in the mucous crypts surrounding the necks of the teeth, failing to wash away particles of food. It is very unpleasant as well as unpromising to operate on teeth in this condition, and attempt to cleanse

and keep cleansed such teeth with instruments is almost impossible; the deposit is the result of loss of tone in the general system, and the deposit is from the mucous follicles. Tone up such systems with nitro muriatic acid, and as a local wash make such a prescription as the following, Labarraques solution being the active principal:—

R.—Liq. soda chl.,	-	-	-	3i.
Tinct. Myrrhæ,	-	-	-	aa.
Tinct. Catechu,	-	-	-	aa.
Aqua Rosa vel Cinnam,	-	-	oz. ij.	—Mix.

Dilute, and use locally three or four times a day, under such circumstances. Nitro muriatic acid is, I think, the prince of tonics; its effects are sometimes almost like magic. You will soon find the teeth assuming a cleansed, pure look, the mucous membrane recover its natural color and power.

Mercurial sore mouth forces at our hands a systemic treatment: a local may relieve, but will not cure. I know of no medicine which entails such an amount of dental discomfort. The odor of mercurial sore mouth is unlike that of anything else with which I am acquainted, and once observed, would alone ever after distinguish it. The constitutional impression of mercury is judged of by its effects on the gums; we have first the coppery taste, together with a slight sense of soreness in the sockets of the teeth; shortly follows the swelling of the gums, while a whitish matter is seen along their edges, and if the medicine is continued, the most extensive sloughing may ensue. My mode of treating mercurial sore mouth comprises the systemic and local; for the first, I can highly recommend the potassæ chloras of the pharmacopœia; for the latter, freely scarify the gums, painting them after each operation with iodine.

Dr. McQuillen said, that he could not but take exception to certain views that had been advanced at the close of the last meeting; “that instead of placing patients upon a dietitic regimen, or administering medicinal agents calculated to increase the amount of calcarious constituents in the teeth, the practitioner should aim to increase the organic, rather than the inorganic materials present. It was difficult for him to appreciate how this could be effected other than by robbing the teeth of the calcarious ingredients already present.” Such a course, indeed, if pursued, would be reversing the order of nature, for all the tissues of the body become more and more dense as we advance in years; thus the tooth which in the beginning was a mere papillæ, increases in size until the pulpy mass assumes the shape of the future tooth. At this point, calcification commences, and advances until the tooth is fully formed and erupted, not stopping here in the permanent set; deposition continues increasing the density of the dental tissues, as we advanced in years, until eventually,

in old age, not only are the dentinal tubuli consolidated, but the pulp chamber frequently obliterated. The operation of the same law is manifested in the bones, which, from being soft and pliant in childhood, become hard and brittle in after life. The soft tissues of the body are not even exempt, ossification of the heart and blood-vessels being by no means an unfrequent occurrence. He thought we should not place too much stress upon the vital force of the dentinal tissue, but bear in remembrance its position in the scale of vitality.

Dr. J. Foster Flagg remarked, that his views in regard to the *practical* utility accruing from the discussion of this subject of constitutional causes of caries, were, that it must, at present, necessarily be exceedingly limited, but that he foresaw much that would undoubtedly redound to the credit of the discerning practitioner, as suggestions were thrown out and ideas eliminated by this associated presentation of opinions. He would reiterate his former objection to the administration, internally, of preparations of lime, as had been suggested, contending still, that the rule held good in relation to the teeth, as in other structures: the higher the scale of vitality, the more competent the resistance to decay; instanced, in proof of this, the continuance, under most disadvantageous circumstances, of the cemental portions of the teeth after the entire enamel and dentinal structures had fallen victims of caries; referred to the chalky teeth of which he had spoken upon a former occasion, and wished to be understood as not meaning the white pearly teeth of consumptives, but the soft, crumbling, inorganic dentures peculiar to the lymphatic temperament; considered the strong yellow teeth of the bilio-sanguine temperament as examples alike of those highest in the organic scale, and those most capable of resisting the causes upon which caries depends; spoke of the powerfully disadvantageous circumstances under which the deciduous teeth labor; the constant vitiation of secretions by disease; the neglect which childhood entails, notwithstanding the most watchful care on the part of parents, and questioned the durability of the permanent organs, under such conditions. Referred to the almost universal decay of the six year old molar within a year or two of its eruption, and, notwithstanding which, of its possible salvation, as the result of proper plugging; asked if this might not be due to the superior *organic* formation of the deciduous and first permanent teeth; again referred to the *dens sapientiæ*, that tooth, which, if long duration of formation, and inorganic characteristic of constituents was to be the test of durability, would be, par excellence, the enduring organ, and asked, was it so? On the contrary, was not the tooth oftentimes carious, even before full eruption, and not unfrequently sacrificed early during its erupted existence, as unworthy a plug, and could it be considered (even admitting its inaccessible position; and consequent imperfect attention, and its unfortunate covering of overhanging gum, often lasting for a period of months,

and possibly years,) as having been exposed to injurious agencies, at all comparable to those acting upon the deciduous teeth. Considered the subject of "eburnation" of dentine as arising from constitutional causes; would not discuss the propriety of the nomenclature, but defined the condition alluded to by himself, as "eburnated dentine" to be consolidated dentine browned, discolored, or darkened, polished, or otherwise, as found upon exposed surfaces, and in cavities where, from some cause, the progress of decay has been arrested. Stated that he would, at present, express no opinion as to the cause of this arrestation, but denied that it was due to consolidation of tubular structure, as he had proven, by frequent microscopical observations, that this consolidation existed frequently, to even a greater extent, in cases of slowly progressing caries, than in cases where arrestation and discoloration had taken place, and that "consolidation" always accompanied caries, and seemed to be not the slightest barrier to the rapid progress of decay, when that disease presented itself under the form of "white rot." Advocated the removal of overhanging edges of enamel in cases where "eburnation" was pronounced. Considered that this offered additional security to the affected organ upon mechanical grounds. Had seen cases of eburnated cavities exceedingly sensitive under the enamel, and this sensibility removed in time by the treatment proposed; had pursued this method for several years, and saw no reason for changing it. Thought that while "constitutional treatment" was a thing for much reflection and discussion, we should, in the meanwhile, act constantly, vigorously, and scientifically, in the application of such local remedial agents as are indicated by the peculiarities of each and every case presenting.

Dr. McQuillen.—Every one must admit that is at all acquainted with the subject, the existence of a recuperative force in dentine, but, at the same time, confess that in comparison with other tissues, it is feeble in its operations. Thus, a severe burn or other accident of a like nature in a soft part, would be followed by a slough, and eventually replacement of the part destroyed by the effusion of plastic lymph and the formation of the inodular tissue, or the tissue of cicatrix. Again, if a portion of bone is attacked with inflammation, and necrosis takes place, the dead part is thrown off by exfoliation, and its place is supplied by new bone. With dentine, however, recuperation is confined to limiting the progress of decay by consolidation of the dentinal tubuli. Neither slough nor exfoliation takes place, and it is incapable of replacing that which has been lost. With regard to the *first* molars, and the period of childhood which had been alluded to, as a time of life at which the system possessed a greater power of resisting and overcoming the influence of disease than at any other period, he would ask whether the lax condition of the tissues at

that time do not constitute a predisposition to many affections, and whether the liability to disease is not much greater in the young child than the matured man, and the mortality infinitely greater? Certainly no one would deny that the liability to caries is greater, and the ravages of decay more extensive in childhood than in manhood. The first molar in particular, suffering so much that, even with the greatest care on the part of the operator, they are rarely saved. The percentage of loss, according to well authenticated statistics, in these, being immense in comparison with other teeth.* He was unable to comprehend the difference between what is called consolidated dentine and eburnated dentine, and could only regard it as a distinction without a difference. Was satisfied, however, that there was a manifest impropriety in employing the latter term, (which was first used by Mr. Tomes,) as it was in every sense tautological. The word eburnation, from its Latin derivation, means converted into ivory, and has been employed by pathologists to define a peculiar change that takes place in bone. The tautological character of the term can be readily perceived, when we remember that formerly dentine was called ivory. Eburnated dentine, therefore, literally means dentine changed into ivory.

Dr. Buckingham agreed with Dr. Flagg in teeth being able to resist decay when their vitality is increased, that is if he intended to be understood that the earthy, as well as the animal matter, should be both present, and one shall not predominate over the other. The teeth are in the most vital condition when the dentine is most perfect, and this is when the earthy and the animal matters are both present in proper proportions. When the animal matter predominates the teeth are soft, and if inflammation should set up in the dentine, it is very liable to terminate in the death of the part; then the large amount of animal matter decomposes, and assists the external fluids in breaking up the tissue. In cases where the earthy substance predominates, the teeth are in a condition termed chalky; here the animal matter has been absorbed and consequently they are reduced in vitality; any fluid that will dissolve the earthy substance, will act upon these teeth, as they have very little vitality to resist it. We see something resembling this condition of dentine in ivory that has been long exposed to the action of the weather; the animal matter has been decomposed, and the earthy bleached so as to give it a chalky appearance; while fresh, full grown ivory presents a beautiful, rich, yellow appearance, which at once indicates the perfection of the structure; this last kind would resist the action of any corroding agent much longer than

* The late Dr. Eliza Townsend, on one occasion, said that he regarded efforts to save these teeth such a forlorn hope, that he had determined to abandon the attempt when radically affected.

the former, even in its dead state. These three conditions of dentine may be represented by trees, or rather by the woody substance of them. In the young sapling there is a very large quantity of fluid, while the proportion of solid substance is small. The full grown tree has a certain proportion of fluid, but it has also sufficient amount of the solid fibre; but in the old tree, the solid substance predominates. Now, if pieces of wood from these different trees were to be exposed to the weather, we could very easily tell which would decay first. The fluid in the young wood would soon begin to decompose, and these alone would almost break up the structure, but when assisted by the external agents, a complete decomposition would soon take place. In the wood that has been matured, the fluids are in such small quantities, that as they co-operate they leave behind them a gummy substance that protects the solids to a certain extent from the external agents, but in the old wood there is very little fluid; the fibre is very porous, so that any external fluid can penetrate without much resistance, hence decomposition soon takes place; in fact, the woody tissue is partially broken up during the life of the tree. He did not wish to be understood that the analogy between wood and denture was perfect, but the illustration served to convey the idea of the changes he thought to place in dentine. He would compare the wisdom teeth to the dwarf tree that had grown in some cramped position, without sufficient nourishment, the structure of which would not be perfect, and neither during life, nor after death, would it resist to any great extent any agent that had a tendency to destroy it.

Drs. Harris and Harbert participated in the discussion, offering their views and practice.

At the close of the evening, Dr. McQuillen directed attention to the models of the cases of irregularity that had been so ingeniously and successfully treated, and clearly and ably described by Dr. Westcott, in the paper published in "THE DENTAL COSMOS," and also presented duplicates of the original appliances employed in the correction, stating that he was under obligations to Mr. Charles A. Nash, a brother-in-law and student of Dr. W., for the opportunity thus afforded of bringing them under their notice. Thought they evinced a high order of mechanical talent in their construction. Regarding this as a very interesting subject, and suggested the propriety of taking it up and considering it *practically* at the next monthly meeting, each member being requested to bring models of cases treated, and the apparatus employed.

On motion of Dr. James Harris, the "Causes and Treatment of Irregularity" was made the subject of discussion for the next meeting.

On motion, adjourned.

NEW YORK STATE DENTAL ASSOCIATION.

By the New York papers, it appears that the memorial which was signed by a number of practitioners residing in New York, Brooklyn, and Williamsburg, and published in the August number of this magazine, inviting "the dentists of the State to meet at COOPER'S INSTITUTE, in the city of *New York*, on the 6th day of September, at 10 o'clock, A. M., for the purpose of discussing and agreeing upon the organization of a State Association, was responded to by a number of practitioners assembling at the time and place indicated. The temporary organization of the meeting was effected by electing Dr. Clark, chairman. A paper sent to the meeting by Dr. A. Westcott, was then read. A *fair* synopsis of which we are able to present in the following extract taken from a private letter recently received from Dr. Westcott:—

"My position *was*, and *is*, that a certain number of years' practice as a dental surgeon should render one eligible, not necessarily to a *degree*, but simply to an *examination*. The more I have reflected upon the subject of the best method of elevating the standard of the profession, the more I am impressed with the belief that it can never be done without some agency by which we can *assort* the practitioners already in the field. Even the plan adopted with the children of Israel—that of keeping them "in the wilderness for forty years," that the old stock might die there, and a new race be reared there under better discipline, will not work. The fact is, for every quack who dies, two are raised or brought into existence to bury him. If a State Institute can be established with a competent board of directors, who shall, from year to year, appoint an able and impartial board of examiners, before whom the qualifications of all, say of five years' standing, may be fully tested, will it not tend to draw a line of demarkation between those who are worthy, and those who are not? It would furnish a scale by which each could get his true weight or measure, and a legal certificate, if he came up to a proper standard. This would put beyond excuse those who should neglect or refuse to seek such credentials. And in regard to *practitioners* already in the field, which dental colleges never will, nor never can reach, my doctrine is, that if they are in fact scientific, faithful dentists, *they should not be questioned as to where they obtained their information*. Were this question put to *me*, in regard to my dental education, I should be greatly puzzled for a reply. And such is the case with nine-tenths of all the practitioners now in the field, both in this country and in Europe. Whether such an institution be chartered under the head of 'dental institute,' or dental college, it matters very little, as this feature of it would have no direct connection with the course of instruction provided for the mere student. I believe that every dental college should make practitioners, who are in good moral standing, and have practiced — years, eligible to an *examination*; and if, in *fact*, they are found worthy the degree of doctor of dental surgery, it should be awarded them."

At the conclusion of the reading of the paper, a vote of thanks was passed in favor of the writer.

Dr. Rogers then moved a resolution declaring that it was expedient to

establish a New York State Dental Association. He did not think it would be a proper course to apply to the Legislature for a charter for an Institute, which should have the power of deciding who should have diplomas, as no dentist would submit his claim to such a Board. He thought they ought first to establish the Association, which should determine on the qualifications of membership; the Association could then apply for a charter, and have the institute under its own control.

The resolution was unanimously carried.

On motion of Dr. McElroy, the following gentlemen were appointed a committee of five to decide on the organization of the Association: Drs. Franklin, Rogers, Hurd, McElroy, and Fuller.

The committee having presented its report, an animated discussion arose on the various articles contained in the constitution, which was still under consideration, when the meeting adjourned until evening.

EVENING SESSION.—At half past seven o'clock some thirty gentlemen had assembled, and, soon after, the proceedings were resumed.

The report previously presented by the committee appointed to draft a constitution, was, on motion of Dr. Rogers, who framed it, allowed to be withdrawn, and another, substantially the same, substituted.

The constitution, as presented, was then adopted, without modification.

The constitution provides that the organization shall be called the "New York State Dental Association;" that it shall have certain permanent officers; that the officers shall together constitute a board of managers, to which all claims against the Association, and all applications for membership shall be referred; but the action or non-action of this board may be overruled by a major vote of the Association; that any dentist of this State in good standing, who shall be approved by the board of managers and by a vote of the Association, may become a member by subscribing to the constitution and complying with its requirements; that each member shall pay an initiation fee of two dollars, and such tax, not exceeding five dollars yearly, as may be legally imposed; that a refusal or neglect to pay, upon reasonable notice, shall forfeit membership; that the Association shall not assume to decide upon the merits of any dental material, instrument, theory, or mode of practice, that may be in dispute among its members, and that dentists residing in other States may be admitted to honorary membership.

The following permanent officers were elected:—

President.—Dr. A. Westcott, Syracuse.

1st Vice President.—Dr. John Allen, New York.

2d Vice President.—Dr. C. W. Harvey, Buffalo.

Recording Secretary.—Dr. G. H. Perine, New York.

Corresponding Secretary.—Dr. A. Clark, Poughkeepsie.

Treasurer.—Dr. W. B. Hurd, Williamsburg.

After transacting some further business, the meeting adjourned at mid night.

[The summary above, with the exception of the extract from Dr. Westcott's letter, was condensed from the N. Y. Times.]—ED.

EDITORIAL.

DENTAL JOURNALS.

One of the most powerful auxiliaries to regularly constituted Associations, in inducing liberality of sentiment, the cultivation of science, and the development of art, on the part of the profession generally, is an elevated and high-toned periodical literature, which, giving that prominence and attention to practical subjects their utility and importance demands, presents in addition to the fullest extent, the scientific basis which underlies all sound practice; with its columns ever open to well-written contributions in the various departments that directly or remotely appertain to dental surgery, but closed to the effusions of ignorance, the ebullitions of passion, or the cant phrases of the vulgar.

In making a retrospective view of dental journals during the past few years, however mortifying the acknowledgment may be, one must admit that whilst there has been much to admire and commend, a certain portion have evinced an unpardonable laxity in those particulars, and the recollection of the sad trash by which they have frequently been disfigured, cannot but be a subject of regret to properly constituted minds. Papers, faulty in language, defective in structure, and utterly devoid of useful information, which a due regard for the reputation of the writers alone, should have induced the editors to return to them, have been published without comment, correction, or the apology that *matter was scarce, and the magazines must be filled*. Again, who has not, with feelings of pity for the weakness of poor human nature, too often noticed the development of personalities between those least to be suspected of such folly, originating in differences of opinion on purely scientific points; the apparent clashing of interest; methods of practice; organizations of associations; or the establishment of institutions: wasting alike *time, talents, and energies*, which, if they had been devoted with as much zeal exclusively to those subjects, would have eventuated in harmony of action, fraternal feeling, and incalculable benefit to the profession. Rarely, it is true, but quite frequent enough to excite comment, apparently with the object of giving additional force to their thoughts, contributors have employed expressions that are usually left to the vulgar and illiterate, and which, when found in the pages of a professedly scientific magazine, excites in the mind of the gentleman, and devotee of science, a feeling of loathing and disgust.

That these defects have existed, is an incontestable fact; and that such a course is calculated to degrade, rather than elevate our professional standard, to induce emotions of contempt and pity, rather than respect and commendation on the part of literary and scientific men in other departments, is equally undeniable. How, then, shall these faults be remedied, and the demands of the age for a higher order of communications (not mere scrap articles, but well-written and carefully digested essays) than has generally prevailed heretofore, be met? For, in addition to the claims of the dental profession, the wants of the medical practitioner and the man of general science in our department must be responded to. To medicine in particular, and the collateral sciences in general, dentistry is under obligations of the highest nature, and in simple justice we should make some return in acknowledgment of our indebtedness. Every dentist that desires to be prepared for *all* the emergencies of practice, and keep even with the age, should peruse regularly at least one good medical magazine; and each physician that would thoroughly appreciate the relations the teeth bear to the general health of individuals, and their influence in developing sympathetic derangements, cannot find a more certain and reliable medium for obtaining such information, than from the pages of a properly constituted dental journal.

To attain such ends, it is absolutely necessary that editors should exercise a proper power of rejection when articles are presented for publication in which the writer not only displays a palpable ignorance of the subject, but also sets all the rules of grammar at defiance. Remembering, however, that not only our literature, but the medical and general scientific literature of the country, is still in its infancy, and that in comparison with the older countries, few have yet trained themselves to the patient, prolonged investigation that is demanded in the cultivation of science, the effort of those just commencing their literary and scientific career, should not, therefore, be too readily discountenanced where there is evident merit, and the defects that may exist are due to youth and inexperience. As radical reforms are but slowly accomplished, and nothing is perfect in our present state, during the period of probation that we are passing through, a certain latitude must be tolerated, but it should be controlled with a wise discretion by those to whom the duty is entrusted. In the meantime, the young talent and energies of the profession should be encouraged and stimulated to overcome, by constant watchfulness and application, early deficiencies, habits of loose thoughts, illogical reasoning, and the use of vague, inelegant language, and to substitute in their place a spirit of profound inquiry and scientific research, not contenting themselves merely with the wisdom of books, but having *mastered* the knowledge to be obtained in that direction, turning to the pages of nature and comparing her answers with the statements of others. To those just

entering the field of labor, much of the present wants, and the future destiny of the profession must be entrusted; every means, therefore, should be employed to give a proper direction to their efforts, that that future may be a useful and glorious one.

A necessary and important feature, assisting in establishing and maintaining an elevated literary and scientific standard, fostering the good, and weeding out the defective, is a candid, capable, and independent criticism, rising superior to friendships or enmities, dispensed with perfect impartiality, without fear or favor, never considering persons, and taking cognizance of subjects only; recognizing and encouraging merit in those without reputation, and hurling with the spirit of an iconoclast, false idols to the dust, though advanced by the prominent, and whether sustained by friend or foe. The faithful discharge of this duty demands, on the part of those attempting such work, a perfect knowledge of the *theory* and *practice* of the profession, and an intimate acquaintance with the past history and present state of its literature, remembering the great cause in which we are engaged, and that the aim of all should be the establishment of truth. Controversies that may arise from criticism, should be conducted in a courteous and gentlemanly manner, confining them exclusively to the subject under discussion, and never tolerating the introduction of personalities. If, by lack of breeding, such folly is committed by one, the other should "maintain a masterly inactivity" in that respect.

He who cannot elevate himself above the petty feeling of regarding his theory, or mode of practice, or plan of organization, or institution, or magazine, as the most perfect that was ever conceived, and looking upon them as upon darling children, whose defects, blinded by his partiality, he cannot see, repays with ungenerous opposition, with vituperation and insult, those that are honest and bold enough to point them out, is no true son of science, and apparently forgets that *theory*, *practice*, or *system*, by whoever advanced, sustained, or opposed, must stand or fall by their own merits; and further, that *truth* existed before he saw the light of day, and will prevail for ages and ages, long after his name has ceased to exist, and his form has mouldered into dust. Reflections such as these should be sufficient to induce humility, smooth down asperities, and promote a more earnest and devoted cultivation of science.

Above all, those that are engaged in conducting our journals, (never descending to such indiscretions themselves,) should frown down a spirit contemptible in any walk of life, but particularly so in scientific pursuits, and calculated alike to waste valuable time, talent, and energies that are demanded in the cause of science. Those that indulge in, or tolerate upon the part of others, such liberties; are recreant to their duty, and merit, as they will obtain, the contempt of the educated, refined, and just.

J. H. M'Q.

THE AMERICAN DENTAL ASSOCIATION.

It may be said, What have we to do with the American Dental Association, as we were not present at its *formal* formation? We acknowledge the compliment that was paid us, by electing us as a delegate from the Pennsylvania Dental Association, but we could not attend. The National Delegate Convention has kindly invited the members of the profession to consider and remedy the defects of the proposed *plan of organization*, which we suppose means *Constitution and By-Laws*. After setting forth the objects of the Association, which are very good, and in which we have as deep an interest as any one in our profession, it goes on, under the head of *members*, to define what shall constitute eligibility to membership, his rights, privileges, etc.; all very good as far as it goes. The aim is high, but the way it is intended to be accomplished is about the same as that of former associations that have failed to accomplish their high purpose. We have said repeatedly that we do not believe that a society or association, whether local or national, can ever elevate the character of the profession without a rigid standard of requirements; not as to whether the applicant for membership to a local society, or a delegate to a national one, shall present credentials that he has gone through all the formalities necessary to entitle him to membership; there should be no credentials but those of a thorough education in his profession, and what should constitute that education, should be plainly and distinctly set forth; and no matter whether the delegate from a local society presents the evidence of his election at home or not, he should not be admitted to the national association unless he could square up to that proper test. A national society formed in any other way will be no better than the character of the local societies sending delegates. "The members of this Association shall be exclusively practitioners of dentistry,"—Under this head, what is to hinder any dentist from becoming a member, either as a "*delegate* from local institutions," or "as a member *by invitation*," or a practitioner of "*reputable standing*?" Nothing, that we can see. The following rule is somewhat extraordinary: "No member who is not present at a meeting of the Association, shall be required to pay the annual assessment;" this is very lenient; "but no such member shall be entitled to receive a copy of the printed *transactions*," whether it is possible for him to attend or not, sickness, or other circumstances not considered, "unless he pay into the treasury a sum not less than the amount paid by the members in attendance;" a severe penalty, truly; an ounce of prevention, here, is worth a pound of cure. Suppose he did not choose to pay for a copy, shall he not receive one at the same rate that the Association intends to sell their transactions to the non-members of the Association? If the Association do not intend to sell them, he, the delinquent member, shall

be forever shut out. Who shall set in judgment over the great mass of the dental profession, and *invite* members? The old American Society said that we should suppose the entire satisfaction of the profession for all time to come. What shall be taken as an evidence of a dentist being in "*reputable* standing from sections of country not otherwise represented?" There are many dentists of reputable standing in more ways than one, who are not capable of representing their profession at a national society. We do not review this portion of the plan of organization to find fault, but to show that we cannot comprehend it, unless we admit that there is more loose ends in it than another that we have read, although it has been drawn from a constitution framed by "the brightest minds of our country."

J. D. W.

To Correspondents.—We supposed that every one who considered himself competent to write an article for a journal, knew that it was necessary to accompany it with his name and address. It is necessary that such shall be the case before an article can receive attention, or a series of questions be answered. We shall always hold ourselves ready to answer any inquiries that lie in our power, when respectfully and earnestly made for the purpose of eliciting knowledge. A writer has a right to assume any name that may please his fancy for publication, but the publisher must have the real name, and which, if the writer requests it, shall be carefully protected.

J. D. W.

REVIEW OF DENTAL LITERATURE AND ART.

BY J. H. M'QUILLEN, D. D. S.

1. A PRACTICAL TREATISE ON OPERATIVE DENTISTRY. BY J. TAFT, Professor of Operative Dentistry in the Ohio College of Dental Surgery. With eighty illustrations. Philadelphia: Lindsay & Blakiston, 1859, pp. 377.

2. A SYSTEM OF DENTAL SURGERY. BY JOHN TOMES, F. R. S., Dentist to the Dental Hospital of London, and to the Middlesex Hospital. With two hundred and seven illustrations. Philadelphia: Lindsay & Blakiston, 1859, pp. 686.

Enjoying, through the courtesy of the publishers, copies of these two valuable additions (judging from a hasty survey of their contents,) to our literature, we are unable, at present, to do more than merely acknowledge their reception, as the imperative nature of other duties have not

admitted time sufficient for a careful perusal since they came to hand. Without this, we are unwilling to hazard an opinion, though fully aware that the stereotyped expressions of commendation, or censure, are usually awarded after glancing over the table of contents, and one or two chapters of a work. Whatever shortcomings there may be in our presentation of the nature and character of these works, we are unwilling to lay ourselves open to this charge, and shall, therefore, defer presenting a review until the next number of the magazine. It is but simple justice to the publishers to state that the works have been gotten up in an admirable style throughout, (the American edition of the latter work being far superior to the English,) and also to add that they made arrangements with Mr. Tomes, by which he enjoys an equivalent for his labor, on the sale of the edition published in this country. As the piratical habits of publishers on both sides of the water are notorious, it reflects much credit upon Messrs. Lindsay & Blakiston, that they have pursued a just and liberal policy.

DENTAL REGISTER OF THE WEST—SEPTEMBER.

“FANG FILLING OR NO FANG FILLING.—This subject will, from time to time, receive our attention in the pages of the *Register*, as space will permit, and occasion may require. We will only now, and merely for his gratification, refer to one of Professor McQuillen’s objections to our mode of practice. In the first number of ‘THE COSMOS’ he tells us that if the fangs are not filled, ‘the pulp cavity (though perfectly dry before the operation was performed) will soon be filled with serum through the foramen at the extremity of the fang.’ He calls in the aid of the microscope to prove his position, and announces, ‘as the *experimentum crucis*,’ the remarkable fact that a thoroughly water-soaked tooth weighs more than a thoroughly dry one. We expect it does, and we like his theory, and would believe it, if we could, and we know of no reason why we can not, except that it has no foundation in fact. We will give but one case *now* to show our friend that his theory will not hold good.

“A bicuspid tooth was filled after our method, April 16th, 1845. In the summer of 1853, the crown of the tooth was partially broken away, so that it became necessary to remove the filling, and refill. The canal was as dry as the powder of Cromwell’s soldiers. W.”

The isolated case cited above, as conclusive evidence of the invariable absence of fluids in pulp cavities that have not been plugged after the removal of the pulp, is one of those instances in which “the *exception* proves the *rule*.” We are free to admit that *occasionally* similar cases have come under our notice, but the confined and vitiated air, generally liberated on opening the pulp cavity, was most *offensive* and *penetrating*; the odor often contaminating the atmosphere of the entire room.

Nature, it is said, “abhors a vacuum,” and in the animal economy such a condition is entirely out of the question. Every cavity in the body,

the peritoneal and the pleural, the sinuses, the nasal fossæ, etc., contain serum, mucus, or air, constantly formed, and as readily removed; in health, decomposition does not occur; either confined, however, for any length of time, would be invariably followed by such results.

Though perfectly satisfied that no organic substance is an exception to the operations of *endosmosis* and *exosmosis*, as promulgated by Dutrochet. To fully demonstrate the permeability of dentine, and whether or not the *liquor sanguinis* could enter the pulp cavity by the foramen, or (this being 'closed as suggested, by nature,') through the anastomosis between the *dentinal tubuli* in the root, and the *lacunæ* and *canaliculi* of the cementum, after a decayed cavity (opening into the pulp chamber,) had been filled, we selected three teeth, (two molars and an incisor,) that had been extracted some time before, with the pulp cavities thus exposed, and, after a *careful examination*, to ascertain that there was not *the slightest moisture* in the chambers, they were hermetically sealed at the orifice of decay with white wax, and then placed in water, and left there several hours. On taking them from the water, they were wiped perfectly dry on the external surface. The wax then being removed, *water* was found unmistakably present in the *pulp chambers of all*. Desiring to ascertain the *truth*, rather than to bolster up a false theory as it has been denominated, at our request, Dr. Charles Woodnut repeated the experiments, subjecting one of the teeth, (a molar) however, to a more severe test, by *covering the apices of the roots with wax* in addition to closing the orifice of decay. This time the teeth were allowed to remain in water two days. At the expiration of that period, in the presence of Drs. Buckingham, J. Foster Flagg, Pierce, and self, Dr. Woodnut, after wiping the teeth perfectly dry, removed the wax, and, to the perfect satisfaction of these gentlemen, demonstrated not only the *presence of water* in the pulp chambers of those in which the cavities of decay alone had been filled, but also in the one with the *apices of the fangs in addition, coated with wax*; thus proving that which we had inferred from microscopical investigations, and asserted in the August number of "THE DENTAL COSMOS," that, if the foramen should be closed on account of the porosity of the tissues, the liquor sanguinis would pass into the pulp cavity. Remembering that the rapidity with which *endosmosis* and *exosmosis* takes place, varies according to the texture of the tissues, and that in this instance, we were dealing with one of the most dense in the economy, the actual result took us by surprise, as we anticipated that a much longer time would be demanded to effect it.

To recapitulate briefly, then, the passage of fluids along the course of the tubuli, as seen in the field of the microscope, the increased weight of a tooth that had been dried and then immersed in water, (the principle increase being due to the water that had passed into the pulp chamber,)

and lastly, the actual presence of the water in the chamber fully demonstrated, after carefully conducted experiments, forces one to the conclusion, (even if we had not over and again found such to be the case,) that the pulp cavities of teeth treated in the manner advocated by those that merely remove the pulp, will be filled with serum, and this, sooner or later degenerating, discoloration of the teeth, and subsequent periostitis must take place. The absence of fluids in the pulp chambers of some teeth may be accounted for by the formation of gas in the cavity, the result of the disorganization of the serum that entered there; as the gas increased in volume, the remaining portion of the fluid was gradually driven out by the same channels that it entered. We attach no importance to this view, and merely offer it for what it is worth.

In conclusion, we would ask, in a spirit of inquiry, whether those who are opposed to filling fangs, have not neglected to mention two important objections that have had as much, or more weight, in inducing them to assume this position, than anything else, viz.: the difficult nature of the operation, and the inadequate compensation they have obtained when performing the task? We desire to be distinctly understood; these are not advanced as assertions, but put forward as queries. If there are such, though we have never used anything but gold foil under these circumstances, feeling assured that the pulp cavity should be filled when the teeth are in a proper condition, we do not advise, but merely offer as a suggestion, that they try plaster of Paris, (prepared as if to be used in filling a wax model,) first recommended by Dr. Garretson, at a recent meeting of the Pennsylvania Association of Dental Surgeons.

DENTAL REVIEW, LONDON—JULY.

ELECTRICITY AS AN ANÆSTHETIC IN DENTAL OPERATIONS. When taking into consideration the furor with which electricity was adopted a few months back, as a reliable local anæsthetic in the extraction of teeth, by the community and a certain portion of the profession, and contrast the sentiment that was then felt with the convictions that are now entertained, "that it does not remove pain, but only creates a diversion, so that any new pain which may be inflicted on a part is not felt the less, but is lost in some degree in the pain which was pre-existent," one cannot but reflect upon the folly of individuals jumping at hasty conclusions, and the culpability of a committee, appointed by a professedly scientific society, reporting, after a very brief existence, and upon a limited basis of observations, in the most lavish manner, in support of a measure that has so poorly stood that infallible test, which tries all things—*time*.

In Philadelphia, electricity was first brought into notice as a local anæsthetic. Here also, a committee appointed by an organization that makes

some pretensions to a scientific *status*, not only endorsed in the most emphatic manner, all that was claimed for it by the *patentee*, but even went so far as to recommend that a valuable medal in the gift of the Association should be presented to him. Some idea can be gained of the use that has been made of this medal, by referring to the advertisement below, cut from a newspaper.*


After an existence of *several months*, and with an experience that had been gained in *private practice*, a committee appointed by a Dental Society in the same city, stated that they had been unable to discover any alleviation of suffering when using this agent, and therefore could not give it that commendation which it had received at the hands of others. Since that, as already stated, these conclusions have been confirmed by the St. Louis Dental Association; and now we present a still further confirmation in the following summary to a voluminous and able report read before the College of Dentists of England, at a recent meeting:—

“SUMMARY.—The committee have thus in their possession the records of sixty-eight cases of tooth extraction, in sixty-five of which the anæsthetic value of electricity was tested, with all the care and the knowledge at the command of the observers. Fifty-five of these operations were performed to test the value of the intermittent current. Ten were performed to test the value of the continuous current. In these experiments every possible modification was introduced. The poles of the batteries were reversed in different cases; the force of the current, as indicated by the sensations of the patients, was varied; and every necessary precaution was taken to secure insulation of the operator.

“The committee, in viewing the whole of the results of the experiments thus performed, find that in much the larger proportion of cases the results were purely negative. In several instances more pain was excited, owing to the application of the current, than if the tooth had been removed at once by simple extraction, in other instances less, while in a few cases, amounting to five altogether, there was evidence of relief. In three instances this evidence was well marked.

“The committee does not, however, put forth these latter five-named cases as instances of local anæsthesia. It appears to the committee that in all instances where success was apparent, a mental element was called into action, and that the patients, at the time of the operation, were in a state of partial general insensibility, due probably to hysterical syncope.

“In those examples where the patients expressed that the pain was less than they had experienced on previous occasions, the assumed relief did not arise from the fact that the tooth and its neighboring parts had been

*“ Teeth extracted in two seconds without drugs or pain, by the Inventor of the Electro-Magnetic process. The Scott's legacy medal and premium has been awarded to me by the Franklin Institute of this city, for extracting teeth without pain. Teeth filled and inserted, disease of the gums treated, etc., at my office, — street. Do not be deceived by false rumors of other pretended operators, but find No. — street. Office hours, from 7 A. M., till 7 P. M. Dr. —”

rendered dead to external impressions, but from various extraneous causes, of which the committee may enumerate, as most prominent.

"1. Diversion of sensation.

"2. Less difficulty in extraction as compared with previous extractions.

"3. Syncope more or less marked.

"4. Differences in the method of operating. * * * *

"On a final point the committee is unanimous: that in not one instance did any member observe the merest approach to local anæsthesia. Neither in the tooth, nor in the surrounding structures, nor in the part of the body to which the opposite pole was applied, did any indication of insensibility present itself.

"The sum and substance of the labors of the committee, in their practical bearing, is this: that the continuous current of electricity is inapplicable as a local anæsthetic in dental operations; that the intermittent current, from being harmless, its use is allowable in practice, by those who may consider it of advantage to produce a diversion of sensation in the patient during extraction; but that as, in a scientific point of view, the electrical force, according to the present knowledge of its application, cannot be accepted as an anæsthetic, the committee could not undertake to recommend any special electrical apparatus, nor any particular method of applying electricity in the operations of dentistry.

"The foregoing report having been read and discussed in detail by the committee, conveys the unanimous opinion of the members." * * *

"ON VOLTAIC NARCOTISM IN OPERATIONS ON THE TEETH.—At the time when the committee were on the point of concluding their preceding observations, the fact was brought forward that by the application of the continuous electrical current in combination with certain narcotic substances, local anæsthesia could be produced to such extent as to enable the surgeon to perform several operations without pain. To the process thus invented, the name 'Voltaic Narcotism' has been applied by its author.

"The committee, anxious to ascertain whether the new process could be applied advantageously in dentistry, discussed at a meeting held on February the 5th, the propriety of investigating that point.

It was then moved that experiments should be instituted and added as an appendix to the report." * * * *

"SUMMARY ON VOLTAIC NARCOTISM.—The conclusions arrived at by the committee in relation to eight observations are—

"1. That the application of a narcotic solution to a tooth, in connection with a continuous current of electricity of considerable intensity, leads unquestionably to the production of local anæsthesia, so that in some instances the pain of extraction is entirely broken by it.

"2. The anæsthesia thus produced is true anæsthesia, extending from the tooth to surrounding parts.

"3. The process is limited in its application. As at present understood, it can be only used successfully in cases where the cavity of the tooth is exposed.

"4. The time required in the application of the process in each case is a serious obstacle to its practical usefulness.

"5. The pain produced in the first stages of the process, particularly when the tooth is irritable, is always complained of. The pain dies away, certainly, as the process goes on, but to be successful, there should be no pain at all during any stage.

"6. The above objections are too decided in character to enable the committee to recommend this process as a practice. The members are, nevertheless, of opinion that improvements of an important kind admit of being made in the process; and with the hope that the history thus put forward may serve as the basis of such improvements, they lay the results of their united labors before the profession."

"MALIGNANT DISEASES INVOLVING THE ORGANS OF MASTICATION. By BENJAMIN W. RICHARDSON, M. D."—Satisfied, as we have always been, that there is, or should be a strict line of demarkation between the practice of Dental and General Surgery, and thoroughly convinced that one who is fully occupied in discharging the duties strictly embraced under the head of Operative Dentistry, can have but little time to treat cases that belong properly to the surgeon; we have, notwithstanding all this, invariably advocated in the strongest manner, that the dentist should be thoroughly acquainted with the characteristics of the various affections that are even remotely connected with the dental organs, so that he may be able to form a correct diagnosis when they are brought under his notice. With such knowledge, when consulted by the intelligent physician, in cases where he has reason to suppose that the teeth are in some way or other connected with the disease he is treating, by his more intimate acquaintance with their derangements and sympathies, will be able to assist materially in forming a correct diagnosis. The great difference between the mere knife-man, and the rational and philosophic surgeon, is the advantage in *diagnosis* and *prognosis* that the latter possesses over the former. This quality the dentist should cultivate to the fullest extent that opportunities afford.

Containing as the following does, a reliable description of the nature and characteristics of the malignant diseases that are occasionally presented to the dental practitioner, they will undoubtedly be read with the same interest that previous extracts from communications by the same writer have inspired:—

"By the term malignant diseases is conveyed in one general expression the diseases known commonly as cancerous diseases. They are not a wide group; indeed it is in a strict sense incorrect to speak of them in the plural number. There is, in a word, but one disease. The external form in which the disease manifests itself may vary, and upon such local variation we have a reason for certain names, after the same fashion as that by which we designate this man a negro, and that man an albino. But the disease is essentially one throughout, having the same general cause, symptom, course, and termination.

"The essential nature of the disorder, in so far as it is presented to us, consists in the establishment in some part of the body of a series of new processes, consisting: First, in the formation, in the part affected, of a product foreign to the part; secondly, in the destruction of the normal structure of the part; thirdly, in the steady elimination from the part of

a fluid or semi-fluid substance, derived from the blood; and fourthly, in the exhaustion of the system to its death from the constant loss to which it is subjected. * * * * *

"Attach no superstitious notion or mythical idea to cancerous growths. They kill by virtue of their interference with a simple physical law. Banks break by interference with the same law, and nations fail. If, in the grand universe the same law were broken, all organic life would fail, and mother earth would be childless. The cancerous growth is not peculiar to any one structure of the body. It may be developed in gland, it may occur on mucous or cutaneous surface, it may occur in bone; and the three positions here noted are those in which it is most frequent. Nor is it peculiar to one special age, though it is most so after the age of thirty, and goes on after this increasing till old age; it has been known, however, to affect the infant before its birth. * * *

"It has been observed too, by most writers, that age stamps in some measure the character of the cancer mass. Thus hard cancer is most frequent in old persons, soft and bleeding cancer in the younger. But there are exceptions to this rule.

"The disease is ordinarily more common amongst women than men; this remark applies rather to cancerous formations altogether than to particular forms of cancer. In relation to some special varieties of malignant growth, the prevalence might, I believe, be traced to the male side of creation. * * * * *

"It was assumed some years ago that a peculiar cell called 'caudate' was diagnostic of a cancer growth. This view, after much discussion, has been set aside. Dr. Henry, in a very able paper on this point, says:— 'That he should rather be guided by finding cells in situations where they ought not to be, than by finding any special cell. But if there is one cell more diagnostic of cancer than another, it is a large parent cell, with from three to five smaller ones in it.' The cancer fluid is a creamy fluid which pervades the whole structure, from which it may be squeezed out by pressure, and contains the cells of which I have spoken. * *

"The pain arising from cancer varies according to the character, and varies as to cause. In scirrhus, or hard cancer, the pain from the first is excruciating. A deep, frequent, lancinating pain, which no sedative relieves, and which occasionally takes place in paroxysmal periods. In other cases the pain, less intense, is dull and heavy. When the pain is lancinating, it is due usually to interference with the nerves by which the part affected is supplied. When it is dull and diffuse, it is due, at least in part, to pressure and to encroachment by the diseased mass on neighboring structures.

"There is, further, one general sign which is always considered as indicative of the existence of cancerous disease. This is called the cancerous cachexia. Its signs are, a prostration of energy; often an unusual irritability of mind; a striking dusky yellowness of skin; these symptoms go on increasing until in wasting and pain the end arrives. * * *

"I have observed already that cancer may attack a variety of structures; it may therefore as a necessity attack various organs, since organs are but compounds of structures. Hence cancer growths have a wide range; they occur in glands, as in the breast or liver; in bone; in the stomach; beneath the skin; beneath the mucous membrane of the mouth; in the nasal cavities; in the serous cavities.

"In the practice of dentistry, however, the cancer growth is met with

as occurring only in a very limited section of the body, viz.: in the maxillary bones; in the nasal cavity; and beneath the lining mucous surface of the mouth and lips, and on the tongue. * * * *

"As many of these cases of malignant disease are mistaken for affections of the teeth, the dental practitioner is he who is most likely to be first consulted. The case clear to him as one of tumor in the antrum, it remains for him at once to transfer the case to his brother surgical practitioner; inasmuch as, if operation is to be done, every day lost is a year against the chances of success.

"Let me briefly sum up, then, the main diagnostic points in this class of disease.

"They are—

"1. The appearance of swelling of the cheek, with acute pain.

"2. Hemorrhage from the nose, and indications of fungus growth in the nasal cavity.

"3. Extension of swelling to the palate, with crackling sensation on making pressure on the palate bone, or projection of fungus substance in the position of gum abscess.

"4. The cancerous cachexia.

"5. The age of the patient; the middle age, or a period after the middle age, being the dangerous periods.

"6. History of hereditary tendency to malignant growth.

"To these general signs two others may be added.

"In some instances, as the disease depends on a general producing cause, its local development is not confined to one part. Sometimes there is an accompanying enlargement and painful condition of a lymphatic gland; as, for example, of one of the neck glands. If this be present, the evidence, taken with the preceding signs, is strongly in favor of malignant maxillary disease.

"Again, in all cases of doubt, where the evidence negatives the view of malignant disorder, it is always consistent with the soundest rule of practice to remove a tooth from beneath the maxillary cavity, and to puncture the cavity so as to give vent to any contained fluid. If, then, this puncture is made and fluid does not follow, or if, instead of purulent or mucous fluid following, blood flow, the evidence is so far favorable to the hypothesis of cancerous disease, that the case is at least one which comes into the domain of the physician or surgeon.

"Are there any more sources of fallacy in the diagnosis of cancerous growth in the antrum? I think not; at least I think that there are none of serious moment. Two conditions may, nevertheless, be considered. These points are advanced with great force and plainness by Mr. Redfern Davies in a history of encephaloid disease of the antrum, recorded in the 'Lancet' for January 23, 1858, and reprinted in full in the 'Quarterly Journal of Dental Science.' The conditions which might occur, instead, are exostosis of the maxillary bone, and polypus of the nose extending into the antrum.

"Now, in any case, exostosis of the maxillary bone would be known from malignant disease by a few simple and commonsense indications. The swelling in the first is very slow; secondly, it is very firm; thirdly, it is persistently firm; fourthly, it is not the swelling which would naturally follow pressure exerted within the cavity of a bone and extending in all directions, but it is a projection from one special point, extending by

simple increase of itself, and after the manner in which it was first laid down.

“With regard to polypus commencing in the nasal cavity, there is this general and very satisfactory indication: that polypus, commencing in the nose, and extending into the antrum, may be distinguished as of polypoid growth from the first, by the simple circumstance that the growth did commence in the nose; for it seems to be the law regarding simple polypoid growth, that it never affects the nose from the antrum, but always affects the antrum from the nose; while true fungus growth in the nose, on the contrary, affects the nose from the antrum, and not the antrum from the nose.

“In any case, then, of suspected disease of the antrum, examine always the nose. If in the nasal cavity there be any signs of nasal polypus, and the previous signs have been mainly those of nasal polypus, the enlargement and pain about the antrum having succeeded the nasal symptoms, the evidence then is in favor of disease commencing in the nose, *i.e.*, of nasal polypus extending into the antrum. But if all the symptoms have previously been referred to the antrum, and late in the day there is projection of fungus growth into the nose as from the antrum—if such projection rapidly grow, and if its emergence be attended with hæmorrhage—the evidence is too clearly in favor of the existence of malignant disease extending from the antrum into the nasal canal.

“I have lately had the pleasure of seeing a case in connection with our President, in which polypus growth of the nasal cavity having firm lateral adhesion on the left side, has been for some time accompanied by frequent attacks of toothache, and decided general enlargement of the cheek. The patient has had two teeth extracted for the toothache without relief, because clearly without reason. Were not the patient young, the prognosis would be of difficulty—but as she is twenty-one years of age only, as the general health is good, as there is no evidence of enlargement of lymphatic gland, and as the symptoms appear to have arisen first in the nose, I should diagnose that the case is one of polypus of the nasal cavity, attended either with extension of the polypoid tumor into the antrum, or by closure of the canal leading from the antrum to the nasal chamber, and consequent accumulation of fluid in the maxillary sinus.

“I saw, however, last summer, a fatal case of cancerous disease, with my friend Dr. Barker, of Bedford, which indicates that in early stages great difficulty attends diagnosis, even when polypus is the first sign. The patient in this instance presented himself to Dr. Barker with no other symptom save that of a polypus in the nasal cavity. As the tumor progressed rapidly, the patient was subjected to the opinion of several of our leading London surgeons, who all pronounced that there was not more than simple polypus. The growth was attempted to be removed, but it grew the more quickly as the result of the operation. Extending rapidly on all sides, it flattened the nose till that organ was continuous throughout with the cheek; piercing the palate bone, it projected through the mouth, removing the anterior part of the jaw by so-called absorption; and finding in this course least opposition, it continued to extend till deglutition was rendered impossible, and death closed the scene.

“In this case the patient was over sixty years of age. The disease, though commencing at polypoid, was malignant; and in this sense the diagnostic points offered above were modified. True, the fungoid growth

might here also have commenced in the antrum; but the evidence on this particular fact is, unfortunately, defective.

“Malignant disease, affecting the bony structure of either upper or lower maxillæ may occur from two sources: independently, *i. e.*, from the bone itself, or secondarily, *i. e.*, by becoming involved in neighboring cancerous disease, as by disease commencing in the lip or other part of the mouth, and extending to the maxillary structure. In cases of this latter description the diagnosis is easy as regards bone, since the extension of the malignant change is traceable onwards from day to day. But, in the earlier stages of the independent variety of malignant maxillary disorder, there are no specific symptoms by which malignant tumor can be diagnosed from tumor of mild, or, as the phrase goes, of benign cast. We must glean our knowledge slowly, and by careful and constant observation as to the history of the case, and the course of the symptoms. At the best, we can often only infer, and at the best we can often act only upon inference.

“There are, nevertheless, certain broad outlines which are in some measure valuable, which may guide us right, and certainly will not guide wrong.

“Cancerous diseases affecting the maxillary bone may assume two forms, namely, the scirrhus or the medullary. When the first form is present, the disease commences as an independent growth; beginning in the cancellous structure, and extending into the structure, removing parts before it, and opening at last by ulceration. In the second or medullary type, the disease may rather be considered as a degeneration of the osseous structure; and its progress is rather that of general enlargement of the bone than the extension of a tumor from the centre circumferentially. The former differs, moreover, in being of slower development, in producing pain more lanceolating in character, in being attended by enlargement of lymphatic glands, and in giving origin to an enlargement of bone accompanied by great hardness of structure.

“Taken together as representatives of one diathetic disorder, they are characterized by the following indications, which, according to intensity, mark them off from simple kinds of osseous disease.

“They occur as a general rule about, or after the middle age.

“They are roused into active development by some exciting cause, such as the presence of a carious tooth, or an injury to the jaw.

“They are attended with peculiarly sharp pains, which radiate over a wide surface.

“They are characterized, if not at their origin, at least early in their progress, by the cancerous cachexia.

“They bear with them in the greater number of instances, the history of hereditary predisposition.

“They are relieved by none of the ordinary remedial measures, used with success for the resolution of simple growths.

“They are accompanied occasionally by other evidences of cancerous disease, such as hardened gland. This condition is most usual, as we have seen, as the attendant of the scirrhus type of the disorder.

“Their tendency after their active development is toward extension, either by enclosing natural parts in their growth, or by the removal of normal parts by pressure and destruction of nutrition.

“As with malignant growth commencing in the antrum, so, in these examples, the application made by the patient is often in the first instance

to the dental practitioner. The primary cause of excitement is a carious or necrosed tooth; the pain felt is referred to such tooth, and removal is required. The surgeon-dentist is the one, therefore, who is constituted first judge as to the existence of malignant disorder. He cannot recognize it too readily, nor apprise his patient of his suspicions with too much circumspect promptitude.

"Let me add another important note. It happens not uncommonly that the operation of extraction affords, sometimes, to the intelligent man an indication of the evil that is at work. It is not necessarily, it is not usually a living tooth which acts as the irritant; it is rather a tooth long dead, with its crown removed, and its body buried in the gum. It is, in short, a tooth which would hardly be expected to ache, concerning which such severe complaint is made. The tooth removed, there exudes from the opened cavity a sanious matter, or perhaps blood, and the tooth, or more than one tooth, is removed, but the pain does not subside, and the swelling does not subside. On the contrary, the pain increases, the swelling increases, but the alveolar cavity, left open and never ceasing to throw out sanious fluid, becomes filled with vegetative growth, after which the disease progresses without obscurity.

"One of the best marked cases of malignant disease of the lower jaw which I have ever seen, commenced in this way, and while the operator for some weeks afterwards, blind to the real nature of the case, was fiddling at the fungous growth with applications of loaf sugar, vitriol, and caustic, the disease was involving the whole osseous framework, and insuring by its advancement the death which succeeded.

"I need not go on to describe the extent to which cancerous degeneration will progress when it attacks the bone structure; nor need I describe the result. Suffice it to say, that in displacement of normal structures, in extension of growth, in fatality of result, it follows the same general rules as those given above in regard to cancer of other parts of the body.

"Cancer affecting the soft parts of the mouth, such as the lip, the surface of the cheek, or the tongue, assumes in most examples the epithelial variety of the disease. An exception to this may happen with regard to the tongue, the scirrhus or hard cancer being occasionally presented in this organ. This exception, however, need not detain us.

"The epithelial cancer affecting the parts named, commences under the mucous surface in the form of a small induration, or little warty tumor. The age of the patient is important to be noted, for this cancer is rare before forty years. The tumor has commonly a darkish blue appearance, and is hard and painful to the touch. It rarely is developed, even in those predisposed, without the presence of some irritating cause. Thus, in cancer of the lower lip, the common excitant in smokers is the pipe; it is not so much the pressure of the pipe, however, as the heat of the pipe, which excites, for it has been observed that the short pipe, or cutty, is that which proves the readiest irritant. Other irritants play the same part. Thus the primary tumor may commence in the mucous lining of the alveolus, covering a portion of necrosed alveolus, or a carious or necrosed tooth; or the tumor may begin in the mucous lining of the cheek, under the irritation of a broken or jagged tooth. I remember a man, apparently in good health, coming to me about two teeth—one a lower bicuspid, the other the last molar—on account of their causing soreness of the cheek by friction. With no suspicion as to the latent evil, I smoothed down the rough edges with the file, and promised speedy relief, but relief did

not come, so I had the teeth taken out, and still no relief. Shortly the two points which had been subjected to the irritation became the seats of the two nodular masses, from whence dated the progression of fatal epithelial disease. I saw cancer of the tongue, also, once proceed from similar irritation.

"When the small nodule, then, has remained for some little time, ulceration commences at the centre of the mass. The edges of the ulcer are nodulated, and the diseases spreading rapidly, give rise to constant ichorous discharge, constant and unmitigated pain, and now and then to hæmorrhage. Deep fissures which bleed readily form across the ulcerated surface, firm structures lying beneath or near the ulceration, are involved, and from the pain, the discharge, and the inability on the part of the sufferer to receive nourishment, the ultimatum is reached.

"Cases again may happen in which the tumor first formed does not immediately ulcerate, but taking its base over some portion of mucous membrane, beneath which lies a carious portion of bone or tooth, increases largely in size, and becomes a pendulous fleshy tumor, which may remain for months very painful and troublesome, but without ulceration. If the disease is really malignant, time is the only element, nevertheless, to ensure ulceration. The ulceration at last commencing on the surface of the tumefied mass, goes on spreading, the parts beneath become involved, and the symptoms take the same course as in the cases previously discussed.

"Turn we now to the principles of treatment in cases of malignant disease affecting the organs of mastication. To the practitioner of dentistry, as occurring in his every-day life, these are few and simple; to the practitioner of surgery they are momentous, and of all others most difficult. Let us glance at both positions.

"The practitioner of dentistry meeting with doubtful cases of malignant disease has two points to bear in mind.

"First—To use such means as science shall supply to him of ascertaining the nature of the disease.

"Secondly—To use such means as come within the scope of his art, to relieve symptoms, or to test by operation the cause of symptoms.

"Thus, in disease involving the antrum, if there be no indication of polypoid growth in the nasal canal, and if the evidence is doubtful whether the enlargement or pain are due to cancer growth or to accumulation of fluid, it is as much his duty as that of the surgeon to endeavor, if he sees the opportunity, to settle this point by extraction of a molar, and perforation of the maxillary.

"In cases of doubtful disease of the maxillary bone, it is equally his care to remove the sources of irritation arising from teeth.

"In cases of epithelial cancer, doubtful in character, the same rule obtains. In all these instances there is one rule of practice common to the duties of both professions, to remove exciting causes, and the member of either profession does that best whose hand is most skilled in the work.

"But these simple rules obeyed, the malignant malady proved by the inefficacy of the simpler measures or by the specific symptoms, the rest belongs to the physician or to the surgeon, according as cancer shall be considered a medical or surgical disease.

DENTAL QUACKERY.—An address read before the American Dental

Convention at Niagara Falls, August 5th, 1859. By E. T. WILSON, M. D. Boston, press of Rand and Avery, pp. 18. The concluding part of this address, which has been published in pamphlet form, is presented below:—

“While the world is constituted as it is, it were useless to expect that quackery, in any department of life, can be extirpated. Yet something may be done, both to check it, and counteract its evils. I would suggest—

“First—The highest possible standard of scientific attainment in our profession. To depreciate others, we must appreciate ourselves. To exhibit quackery in its native hideousness to the world, we must remove ourselves as high as possible, by professional acquirements, from quackery, and make the space between us evident to the humblest mind. Were I at liberty to name them, I could designate from those around me, individual cases that might serve as patterns in all that is earnest, zealous, and conscientious in dentistry.

“Secondly—A careful avoidance of any of the unprofessional arts to which I have alluded, and a recurrence to the primitive model of our fathers. Whosoever descends into the arena of popular competition, will never rise to a dignified seat with the elders of our vocation.

“Third—Positive refusal to unite in consultation, or in any other manner associate with empirical practitioners.

“I must remind you, as well as myself, of the great responsibilities which our profession entails. If dentistry be a distinct branch of medical science, the best medical men will agree with me in pronouncing it one not easily mastered; demanding great anatomical and physiological acquirements, intelligence, diagnostical talent, close observation, a clear head, and a ready and steady hand; most successfully embraced by the honest, the thoughtful, and the progressive; of vast importance to the general health of the body, and to the enjoyment of all our physical faculties. If studious men have devoted their lives and their minds to diseases of the eye or of the ear, if many great medical minds have been solely employed in special fields of observation, surely, that which we have entered is wide enough for all our industry, for all our devotion, for all our strength. We have outlived, if I may so speak, the disreputable era of our profession; we have seen it acknowledged as important; we have proudly beheld our own land leading all others in this department of the curative art.

“It is for us to maintain the respectability and the position which have been so hardly earned, by sternly discountenancing empiricism, whatever may be its form, however dazzling may be its assumptions, or however brilliant its temptations.”

PERISCOPE OF MEDICAL AND GENERAL SCIENCE IN THEIR RELATIONS TO DENTISTRY.

BY GEO. J. ZIEGLER, M. D.

“*The Chemistry of Caustics.* By WILLIAM BASTICK.—Of all the applications of chemistry to the sciences of medicine and surgery, there is not one which has been so little studied or written upon as the chemistry of caustics. Having recently had my attention called to this fact, while making some investigations into the nature of caustics, and espe-

ally their mode of action, I propose to lay briefly before those interested in this subject, the conclusions arrived at, however fallacious the labors of future and abler investigators may prove them to be.

"It seems to me that caustics, with reference to their action, may be divided into two great classes, namely, one which comprises those which merely kill or destroy the vitality of the living tissue; and the other, which includes those which not only destroy the vitality of the living tissue, but decompose or dissolve the tissue, whether dead or living.

"As examples of the former class, may be enumerated chloride of zinc, sulphate of copper and zinc, bichloride of mercury, etc.; and, as examples of the latter class, may be mentioned caustic potash, nitrate of silver, manganese cum potassa, chromic acid, etc.

"Another distinctive feature of these two classes is, that while the latter destroys and decomposes the living or dead tissue, the former, having killed the living tissue, acts afterwards as a powerful antiseptic or preservative of it.

"It is not within my province to point out to those extensively employing caustics, to whom these facts may be new, the importance of bearing in mind this distinctive feature between the two classes of caustics, when selecting the description of caustic to be employed in any given case.

"Although caustics may be conveniently divided in the manner described into two principal classes, these classes can be further subdivided into many others, because the mode of action is frequently distinct in each individual case, whatever the final result may be on the living tissue.

"To illustrate this point, the modes of action of caustic potash and chromic acid may be cited. When the living tissue is placed in contact with caustic potash, the destruction of its vitality ensues by the potash dissolving its albuminous and fibrinous components; in fact, acting in the manner described by chemists for obtaining the various protein substances from organic matter. Of course I only allude to the leading features of the action of caustics in this instance, as well as in others. When the same tissue is treated, chromic acid, instead of obtaining a solution of the protein compounds of the tissue, and thus destroying its organized structure, the tissue is destroyed by a slow process of combustion; or, in other words, it is oxydized at the expense of the oxygen of chromic acid, by reason of the facility with which that acid parts with its abundant oxygen when in contact with organic bodies. The manganese with potash acts in a similar way as a caustic to chromic acid, but in consequence of the permanganic and manganic acids which it contains being in combination with the base potash, its action is more controllable and persistent. It may not be here out of place to mention, what appears to me to be a practical advantage, that the destructive caustics, if I may so term them, possess over the conservative ones. In doing so, I beg to state, once for all, that I offer my opinion on such points with great diffidence, knowing that chemistry is not medicine or surgery, but only one of their instruments. The practical advantage is this: When the surgeon desires the removal of the diseased tissue by caustics, if he uses a conservative caustic, he kills the tissue, but has to effect its separation by a further process of suppuration, etc.; whereas, if he employs a destructive caustic, the processes are in simultaneous action, and the desired result is, consequently, more speedily accomplished.

"Nitrate of silver is essentially an oxydizing caustic, but its action is much slower than that of chromic acid or manganese with potassa, from

the circumstance that it does not so readily part with its oxygen; and it forms an insoluble compound with organic structures, which acts as a preventive to its continuous power as a caustic, by forming a sort of impermeable coating on the tissue to be removed. I am aware that this action is an advantage where hæmorrhage is to be feared.

"The exsiccated sulphate of zinc and copper, when employed as caustics, act like chloride of zinc by their powerful affinity for water. But when the vis vitæ is destroyed by such affinity, their further action is that of strong antiseptics, thereby greatly, if not entirely, retarding the natural disruption of tissues which have ceased to possess vitality. Bichloride of mercury, and, in fact, all mercurial caustics, possess a conservative action, by their strong affinity for the albuminous components of organic structures, with which they form compounds of definite character.

"Nitric and sulphuric acids belong to the class of destructive caustics; the action of the former is that of the oxydation of the tissues, while the latter owes its power as a caustic to its power of extracting the elements of water from organized bodies,—behaving like the exsiccated salts previously mentioned, with which it is sometimes judiciously combined to prevent the spreading of the acid beyond the parts to be destroyed by reason of its fluidity when combined.

"Chloride of gold has been extensively employed, generally in combination with other caustics, in some of the continental hospitals. When placed in contact with organic matter, this salt is reduced to a metallic state similar to the action of nitrate of silver; but, as far as my experience goes, it is inferior as a caustic to the silver salt, because of the large quantity of oxydizing material which is set free when the organic matter is treated with nitrate of silver. Among the conservative caustics, arsenic and its compounds will find its proper class; for although arsenic is poisonous to living tissues, it is a powerful antiseptic agent. It forms no combinations with dead or living tissue, and only a feeble one with albuminous matter; and from this cause it must be regarded, in a chemical point of view, as a very inefficient caustic.

"Chlorides of antimony and iron, which have been used as caustics, exhibit a mode of action similar to chloride of zinc. The very feeble action of the latter must, in some cases, be its principal recommendation.

"It will be evident from the previous statements, that chemistry will supply us with an indefinite number of caustics; for it is clear that whatever decomposes or combines with living tissue sufficiently to kill it, is to all intents and purposes, a caustic. It is equally manifest that, while it is the essential condition of every substance professing to be a caustic, that it should kill the living tissue, it by no means follows that all caustics performing this condition should destroy or dissolve away, as it were, the tissue, when no longer possessing life, for this latter property belongs to a distinct class of caustics.

"I am aware that I have not noticed the so-called irritant action of caustics; but, in explanation, I reply, that the consideration of this action is foreign to the purpose of this communication, and, moreover, a subject not within the province of the chemist.—*Med. Times and Gazette, and Scientific Annual.*

"*Notes on Electro-Metallurgy. A Summary of the most approved methods and recipes.*—I. PLATING WITH THE BATTERY.—The article (negative electrode or cathode) which is to be covered with a film of another

metal, (*electro-plating*,) is placed in a glass or porcelain vessel, containing the *electrolytic fluid*, and is connected with the zinc-pole of a galvanic battery (of Daniell or Smee.) A piece of the metal from which the electrolytic fluid is prepared (the *positive electrode or anode*) having been placed opposite the cathode in the same vessel, is connected with the copper or silver pole of the battery, and the apparatus is ready to work. For the perfect progress of the operation, it is necessary that the surface of the cathode be as clean as possible, that the electric current be properly graduated, and that the electrolytic fluids be sufficiently dilute and neutral.

"ELECTRO-SILVERING.—The electrolytic liquor consists of—cyanide of silver, one part; cyanide of potassium, two to four parts; pure water, thirty to sixty parts; which are mixed by shaking, and, if necessary, filtered. *Or*, Crystallized nitrate of silver, three parts, are dissolved in pure water, a hundred parts; to which is added cyanide of potassium, in solution, to redissolve the precipitate at first formed by its addition.

"ELECTRO-GILDING.—The electrolytic fluid consists of—cyanide of gold, one part; cyanide of potassium, three to six parts; pure water, fifty to one hundred and fifty parts. *Or*, Ter-chloride of gold, one part; dissolve in pure water, fifty parts; to which add of a solution of crystallized carbonate of soda, four parts, in pure water, twelve parts; just enough to neutralize the excess of acid in the solution of gold. Then add a hot solution of prussiate of potassa, ten parts, in pure water, fifty to sixty parts; heat to boiling, and pour in the rest of the solution of soda; let stand for some hours; then decant and filter. *Or*, Ter-chloride of gold, eleven parts; dissolve in pure water, one hundred parts; to which add aqua ammoniæ, so long as a precipitate is formed. This precipitate (which is fulminate of gold and requires caution) add, still moist, to a hot solution of cyanide of potassium, six to eight parts, in pure water, five to eight hundred parts.

"II. PLATING WITHOUT THE BATTERY.—*Paste for Silvering.*—Fused nitrate of silver, ten parts, are dissolved in pure water, fifty parts; to which add the solution of cyanide of potassium, twenty-five parts, in pure water, fifty parts. Mix by shaking, let stand for a quarter of an hour, and filter. For use, this liquid is thickened with a compound powder of prepared chalk, one hundred parts; cream of tartar, finely powdered, metallic mercury, each one part. *Another*, Fused nitrate of silver, one part; cyanide of potassium, three parts, are rubbed up in a porcelain mortar, and made thin enough for use with pure water. Both of the above pastes are rubbed on the article with fine linen. *Another*, Dissolve chloride of silver in hyposulphite of soda, and thicken the liquid with chalk. To be applied like the foregoing, by friction.

"For plating in a liquid by electric action, induced in the same by means of two zinc-rods, the following preparation is used: Dry chloride of silver, two and two-third parts, dissolved by shaking with aqua ammoniæ, sixteen parts, for a quarter of an hour; then add the hot solution of crystallized carbonate of soda, cyanide of potassium, of each ten parts; chloride of sodium, four parts; pure water, 240 to 250 parts; mix and boil for a quarter of an hour. The metallic article, thoroughly cleaned by means of spirits of wine and chalk, is immersed in the boiling fluid, and connected with zinc rods.

"GILDING PASTE.—Metallic surfaces are gilt by rubbing on the following mixture: 1. Ter-chloride of gold, thirty-six parts, dissolve in pure water, thirty-six parts, and mix with a solution of cyanide of potassium,

sixty parts, in pure water, eighty parts; shake well, and set by for a quarter of an hour; then filter. This liquid is thickened with a powder composed of prepared chalk, one hundred parts; cream of tartar, five parts.

"ELECTRO-GILDING WITHOUT BATTERY.—1. Ter-chloride of gold, nine parts, dissolve in pure water, 1,000–2,000 parts; then add bicarbonate of potassa, three hundred and sixty parts, and boil for two hours. The metallic article, if not copper, is covered with a film of copper simultaneously with its being immersed into the boiling gilding liquor, by placing a piece of sheet copper along with it. As soon as a deposit of copper is observed, the piece of copper is taken out, and the liquor continued boiling until a deep yellow cover is obtained. The article is then taken out, washed off with water, and rubbed with a metallic brush. When the liquor has again become clear, by settling and decanting, it is again heated to boiling, the article immersed, while the piece of copper is moved about in the fluid without touching the other. The same operation may be renewed, *ad libitum*, until the desired thickness of gold is obtained. 2. Ter-chloride of gold, two parts; pure water, four parts; dissolve and mix with the solution of cyanide of potassium, chloride of sodium, of each, six parts; crystallized carbonate of soda, four parts, in pure water, 240 to 250 parts. Let stand under frequent agitation, until the liquid is colorless. The method of gilding is the same as above for silvering with the aid of two zinc rods.

"REMOVING THE PLATING.—This is done by simply placing the object in the electrolytic fluid of the metal with which it is covered, and connecting it with the platinum pole, whilst the piece of metal (previously the anode) is joined to the zinc-pole of a battery."—*Am. Druggists' Circ.*

"On Coloring the Lips by Tattooing after Cheiloplasty. By Professor SCHUH. (*Wien Medicinische Wochenschrift.*)—Two years since, Professor Schuh performed cheiloplasty in the Vienna Clinic, upon a girl in whom one-half of the nose, together with the vomer and the whole of both lips, were wanting. The flaps for the lower lip were supplied from the region of the lower jaw and the neck, and that for the nose from the forehead, while the skin of the arm was employed for the upper lip. The connection of the flap with the arm was divided on the tenth day, and all went on well, excepting that the new upper lip, at its lower edge, owing to the cicatricial process, was covered with corion. The red lip-color was wanting to give the mouth an agreeable appearance; and Professor Schuh determined to endeavor to imitate this by tattooing. He first of all tried cochineal as a coloring material, but this produced a too pale red, and he then had recourse to cinnabar, which gave rise to a surprisingly natural color.

"The following is the procedure: the cinnabar is made into a thin paste with water, and the limits within which the pigment is to be applied are traced with a pen and ink, in imitation of the direction of the natural redness of the lips. For forcing the pigment into the organic substance, a bundle of sharp-pointed pins is employed, each pin being wound round with waxed silk from its head to within four lines of its point. Ten or twenty such pins are tied into a bundle with thread, dipped into the coloring substance, and repeatedly forced two or three lines deep into the lip. The margin marked by the ink is the first to be colored, and then the other portion, dipping the points into the pigment again as this is wiped

off. Only a slight bleeding ensues, and the pain is very little, in consequence of the diminished sensibility of transplanted parts. Any of the pigment remaining on the surface should be left there until next day, and if any part is found to be less red than the others, this can be easily remedied.

"How long this redness will remain unchanged must be determined by further experience. In Professor Schuh's case it had become nowise paler at the end of a year and a half; and he believes that the introduction of the process of tattooing into the field of plastic surgery is not to be despised."—*Brit. and For. Med. Chir. Rev.*

Anæsthetic effects of Bisulphide of Carbon.—"Dr. WM. H. UHLER, of the Falls of Schuylkill, at a recent meeting of the Academy of Natural Sciences, mentioned that he had a short time before accidentally inhaled the vapor of the bisulphide of carbon, which had produced complete anæsthesia. He was removed from the laboratory by the workmen in a completely insensible condition. He revived in a short time suddenly and completely, and he did not subsequently experience any nausea, or the least unpleasant symptoms. Whilst in a state of anæsthesia, his visions were of the most pleasant and agreeable character."—*Med. News.*

"Complicated Double Hare-lip.—By CLARKSON FREEMAN, M. D., Milton, C. W.—John M., aged four months, (June 24, 1857,) a fine healthy child, has been spoon-fed from its inability to nurse. It had no upper lip except a small rudimentary angular projection of integument from either commissure of the mouth. The anterior process of the alveolar process of the superior maxillary bone was attached to the apex of the nose with a slight covering of mucous membrane of an oval appearance, and about the size of a pigeon's egg.

"There was a fissure of both the hard and the soft palates, leaving an interspace of more than half an inch in the mesial line. The child was rolled into a sheet and inclined a little forward, when the nasal appendix was incised by the scalpel to its bony structure, which was fractured by a pair of bone forceps, and pressed into its normal position, then the lateral integuments were pared, approximated, and secured by two interrupted sutures and adhesive plaster, preventing any undue tension upon the ligatures. The child was almost in a state of collapse from the shock of the operation, from which it soon rallied. He slept for four hours under the influence of a dose of Tinct. opii Camph. Union took place by first intention. The child is now nearly two years old, very healthy, and looks remarkably well. A few months since a tooth made its appearance from that portion which now occupies the alveolar septum, with which and the rest of its teeth it can masticate easily.

"An uncle and a cousin to this child are similarly affected, but the difficulty is not so formidable in either case."—*Montreal Medical Chron.*

"Tobacco.—The pupils of the Polytechnic School in Paris, have recently furnished some curious statistics bearing on tobacco. Dividing the pupils into two groups—the smokers and anti-smokers—the report shows that the smokers have proved themselves in the various competitive examinations far inferior to the others. Not only in the examinations on entering the school are the smokers in a lower rank, but, in the various ordeals they have to pass through in a year, the average rank of the

smokers had constantly fallen, and not inconsiderably, while the men who did not smoke were found to enjoy a cerebral atmosphere of the clearest kind."—*New York Medical Press*.

On Neuralgic Dysmenorrhœa. By Dr. J. Y. SIMPSON.—"All pathologists admit a neuralgic division. That is, all admit that dysmenorrhœa may occur in patients who are subject to neuralgic affections, and in whom pains disappear from the other organs and parts of the body at the time of menstruation, only to become concentrated, as it were, in the region of the womb. Such patients complain habitually of aches and pains in the face, the head, the mammae, the intercostal spaces, or elsewhere, and these pains all become aggravated for a day or two before the appearance of the catamenia. Then acute and constant pain begins to be developed in the uterus, and as the menstrual flow sets in, the pains in other parts of the body become quite relieved. In such cases, the uterine neuralgia persists during the whole menstrual period—remitting, perhaps for a time, but never altogether intermitting."—*Braithwaite's Retrospect*.

"Fourth Kingdom of Nature.—M. GEOFFROY SAINT HILLAIRE, (*Compte Rendus*, April 25th,) presented to the Academy of Sciences the second part of the second volume of his general history of the organic kingdoms.

"The *savant* author with reasons, introduces into his classification of beings a separate kingdom, which he calls the human kingdom. This is the differential formula: plants *live*; animals *live and feel*; man *lives, feels and thinks*.

"The same division had been made in 1842, by M. Grimaud, but ignored by M. St. Hillaire. So says M. Grimaud."—*Pacific Medical Journal*.

"Stomatitis Materni.—Dr. DAVID PRINCE, of Jacksonville, Illinois, writes to the editor of the *Chicago Medical Journal*, July, 1859, that 'nursing sore mouth is endemic in and around Jacksonville; that the treatment in this region has come to be a settled and sure thing. It is very rarely the case that a nursing mother is required to wean her child on account of this affection, unless it has become obstinate by neglect, and the general health reduced by its irritation and the attendant inability to take nourishment.

'The favorite remedy is iodide of iron. The liquid ferri iodide of the U. S. D. is combined with an equal quantity of compound Syrup of Sarsaparilla, for the more agreeable taste, and of this a common sized teaspoonful is directed to be taken three times a day. In nine cases out of ten this cures, whether before or after delivery. * * * * * The next remedy in favor is the chlorate of potash. A saturated solution is used both as a local application and an internal remedy. A tablespoonful of the solution may be held in the mouth for a few seconds and then swallowed, or if only a local application is intended, it can be thrown out of the mouth. This may be done from three to twelve times a day. The two remedies may be used singly or in combination.'"—*Penin. and Ind.*

The course here indicated, was certainly very successful, yet it should be recollected that the treatment of this and every other disease depends upon a variety of circumstances, such as its type, stage, intensity, complications, etc., and the diathetic and other peculiarities of the organism

affected. Hence it must necessarily vary according to the special indications presented. Thus, for instance, in conditions like the above more or less dependent upon mal-nutrition and often connected with a scrofulous dyscrasia, it may be necessary to resort in the early or acute stage to the iodide of potassium alone, or, better still, in combination with the iodide of sodium. In the subacute stage, the iodide of sodium alone or in conjunction with the iodide of iron, and sometimes that of the potassium. In the chronic conditions, the iodide of iron alone is usually most appropriate, though the conjoint influence of the sodium, and even of the potassium, may sometimes be required. In like manner, the chlorates and chlorides may be employed. Thus, the chlorate of potash alone, or in conjunction with the muriate of ammonia and chlorate of soda in the acute stage; the chlorate of soda and chloride of iron together, or with one or both of the former in the subacute; and lastly, the chloride of iron alone, or with the chlorate of soda, or chloride of sodium, and sometimes, also, the chlorate of potash, in the more advanced and chronic conditions. Other remedies, such as the vegetable and mineral acids, the phosphates, etc., are also very useful.

As a general rule, these preparations of potash and ammonia are inadmissible whenever a tuberculous complication exists.

One or more of the above-mentioned remedies, according to their compatibilities, may frequently be also advantageously combined or alternated with the stimulant tonics, in order to invigorate the general system and promote the more rapid recovery. Of course, in all cases, due attention must be paid to hygiene, as a necessary basis for successful medication.

"Heat Conducting Power of Metals."—Professor F. Grace-Calvert and Mr. Richard Johnson have made a great number of experiments to determine the relative heat-conducting power of metals and alloys, and also to ascertain whether these latter are simple mixtures or definite compounds of the former. "With this view," (*Journal of Franklin Institute*), "they operated on a large number of alloys and amalgams, convinced that if the chemical nature of alloys and amalgams is still enveloped in darkness, it is because they have been prepared with impure or commercial metals, and not made in equivalent quantities. The consequence has been that as metals have only a slight affinity to each other, and as the definite compounds which they have a tendency to form were mixed with an excess of one of the metals employed, the alloys produced have presented properties which could lead to no information as to their nature. These difficulties have been increased by the fact that in many alloys, such as those of copper and tin, or copper and zinc, the metals have a tendency, when allowed to cool slowly, to form several crystallizable compounds differing in their composition in the various parts of the alloys, the less fusible being on the exterior, and those more so in the interior of the mass. The impurities existing in commercial metals are often so large as considerably to modify the property of their alloys; for they found in their researches that if one per cent. of a metal be added to 99 of another, it alters its conducting

power most materially. To avoid these causes of error they composed their alloys of pure metals, and employed definite proportions. * * *

"The relative conductibility (taking silver at 1000) of the several metals is—gold pure, 981; gold with one per cent. of silver, 840; copper rolled, 845; copper cast, 811; mercury, 677; aluminum, 665; zinc rolled, 641; zinc, cast vertically, 628; zinc, cast horizontally, 608; cadmium, 577; malleable iron, 436; tin, 422; steel, 397; platinum, 380; sodium, 365; cast iron, 359; lead, 287; antimony, cast horizontally, 215; antimony, cast vertically, 192; bismuth, 61. * * * * * It will be seen on reference to the figures for rolled and cast copper that the molecular condition of metals has an influence on the conductibility, and the influence of crystallization is apparent from the difference of the results obtained from zinc cast vertically and cast horizontally."

"*Alloy of Steel.*—Experiments have been made at Vienna, Dresden, and other places, in the use of tungsten or wolfram in the alloying of steel, and some extraordinary results are stated to have been achieved. It is said that steel alloyed with 20 per cent. of tungsten produces a mixture, which, while it retains all the general qualities of steel, is so excessively hard that tools made of it will cut, without difficulty, the hardest cast steel. Large quantities of the new alloyed metal are said to be in preparation, and a company is about to be formed to work the discovery."—*Ibid*, from the *London Mechanics' Magazine*.

"*New Amalgam for Plugging Teeth.*—In the *Journal de Chimie Médicale* is the formula for an amalgam invented by M. Gersheine, which is thought to possess remarkable properties, both as to its softness when first made, and its great hardness afterward, and also as to the facility with which it unites metals and even glass and porcelain. It is susceptible of a high polish, and is not acted on by the weak acids. Take 20, 30 or 36 parts (according to the hardness desired) of pure copper, obtained by precipitating it from the oxyde by means of hydrogen, or from the sulphate by means of zinc parings. Place the copper in a cast iron or porcelain mortar, and sprinkle it thoroughly with concentrated sulphuric acid (density of 1.85,) and add 70 parts, by weight, of mercury, stirring continually. When the copper is completely amalgamated, the composition is to be washed with boiling water, to remove the sulphuric acid. It is then allowed to cool, and in ten or twelve hours it becomes sufficiently hard to receive a brilliant polish, and to scratch tin or gold. Its density remains the same, whether it be hard or soft. When it is to be employed as a mastic, it is rendered soft by heating it to about 675°, and then triturating it in an iron mortar, heated to 225°, until it acquires the consistency of wax. In this state, if placed between two clean metallic surfaces, it unites them so perfectly that ten or twelve hours afterwards the pieces can be wrought as if solid."—*Boston Medical and Surgical Journal*.

We give the above as a matter of information, and on account of the collateral uses to which such a compound may be applied, and not with a view to either endorse or recommend its employment for filling teeth, as both of its constituents, copper and mercury, are highly objectionable for that purpose.

"*Polishing Metals.*—"To polish silver or plated ware, you must employ an impalpable powder, which may be rubbed on with alcohol or water.

There are numerous articles used for the purpose. Whiting is perhaps the most common, but as this is liable to contain gritty particles, it is better to use prepared chalk, which is very cheap, and generally free from this objection. Powdered rotten stone, which has been levigated to free it from grit, is also much used, and forms the basis of the celebrated Stanley's polishing paste. This powder is sold at Photographic furnishing stores, in a very fine condition. Heavy magnesia serves a good purpose. The so-called Tripoli powder and emery are better adapted to brass or steel than to plated ware; they take too strong hold of the surface for constant use.

"We have sometimes removed the stains from silver, such as eggs or the vicinity to leaky gas pipes produce, by the use of a solution of hypophosphite of soda or cyanide of potassium."—*American Druggist's Circ.*

"Long Preservation of Human Teeth.—A very interesting discovery has been recently made at the very gates of Paris, viz.: the tomb of a Celtic chieftain, interred more than twenty-five centuries ago, with the remains of his wife, his horse, and his armor, in the peninsula of St. Maurles-Fosses. Near this part the tumulus enclosed two skeletons, in a very tolerable state of preservation, lying on their faces, the heads being slightly turned toward the south-east. That on the left side, the body of the warrior, was placed in a very regular position, the head resting between the two hands; the jaws were furnished with nearly all the teeth, twenty-five of a beautiful whiteness, with the enamel preserved."—*Ibid.*

"On a Case of Dropsy of the Antrum. By JOHN GREEN, ESQ., M. R. C. S., Sedgley.—Mrs. W——, aged thirty-two, applied, on the 20th of March, to obtain my opinion about a tumor in her face, that she had been told was cancer. There was, in reality, a large hard swelling in the superior maxillary bone of the right side, free from soreness, but attended with a constant pain of an uneasy, gnawing character, not severe, though depriving the patient of her rest. Close to the orbit the bone was well defined and normal. On careful pressure, at the lowest portion of the tumor, the attenuated parietes of the antrum were found to give way with a crackling sound. Inside the mouth the bone was largely distended, completely filling up the cavity between the alveolæ and the muscular covering; the mucous membrane was highly vascular. Several of the teeth were slightly decayed, but not sufficient to warrant the suspicion that dental irritation was the original cause of the mischief. As the patient gladly consented to any means that would be likely to relieve her, I proceeded to extract the first molar tooth, and introduced a trocar, through its socket, into the cavity of the antrum. From six drachms to an ounce of a thin, yellowish fluid, of an intensely bitter, nauseous taste, was then drawn off. Under the microscope, and even with the naked eye, it could be seen to be loaded with cholesterine, as related in other cases of this nature. The relief from pain was instantaneous after the operation; the swelling diminished, and the parts became soft. In the after-treatment, the bowels were acted upon; the cavity was several times injected with warm water, and the wound prevented from closing. The discharge gradually decreased, and in the course of a week had entirely ceased. The parts had recovered their natural size, and there was no pain. The wound was now allowed to heal.

"She could give no account of the original cause of the affection, not remembering ever having had a blow on the part. She told me that it 'came itself' between two and three years ago, and had been slowly increasing up to the time that she came to me."—*Lond. Lancet*.

Influence of Nervous System over Secretion.—"Czermak confirms Ludwig's observation, that irritation of the sympathetic branch of the submaxillary gland, or of the cervical portion of the sympathetic nerve, may excite the secretion of saliva just as much as irritation of the glandular branch of the lingualis. The author remarks, however, in addition, that electrical irritation of the cervical part of the sympathetic nerve may diminish, and even suspend the secretion of saliva. Sometimes the irritation of the glandular branch of the lingualis does not influence the secretion of saliva, when the sympathetic nerve had been previously irritated. If both nerves are stimulated simultaneously, the secretion rapidly reaches its maximum, but after fifteen or twenty minutes it becomes diminished, and frequently ceases altogether. We have, therefore, another proof of the arresting action of the nervous system, if we do not prefer to explain the phenomenon just described as the product of over-irritation."—*Charleston Med. Jour. and Rev., from Brit. and For. Med.-Chir. Rev.*

"Salivary Calculus.—A case of this somewhat rare affection has lately occurred in the person of the editor of the *Gospel Banner*, who devotes a considerable space, in the number of that paper for June 2d, to a description of his case. It appears that the patient had been subject to obstruction of the duct of the submaxillary gland from childhood, and, once before the present attack, a small calculus emerged from the duct, having been preceded by swelling and severe pain. At another time, an abscess formed in the gland. The last attack commenced with pain, swelling, and fever, which soon became extreme, and continued for ten days, when a hard, calcareous substance was found, through an incision previously made. This was extracted by forceps, and proved to be a salivary calculus an inch and an eighth long, and weighing ten grains. It appeared like a rough piece of yellowish-white coral."—*Boston Medical and Surgical Journal*.

"A New Cement for the Teeth.—An excellent cement, obtained from Paris, has been examined by Mr. Feichtinger, of Munich, who has found it to be the oxychloride of zinc, described by Sorvel, with some addition to improve its consistency. Mr. F. gives the following recipe for its preparation: First, freshly calcined oxide of zinc, 3 parts; glass reduced to an impalpable powder, 1 part. Second, 50 parts of concentrated solution of chloride of zinc, (spec. grav. = 1.5–1.6,) mixed with one part of borax dissolved in the smallest portion of water. Immediately before using the cement, the powder is made into a mass, of the proper consistence with the solution of zinc. It hardens very soon, and is then unfit for further use. The dry mass, which is very hard, should be colored by a little yellow ochre, mixed with the glass powder; otherwise, its color will be too white."—*Bayrisches-Kunstund-Gewerbeblatt.—Am. Druggist's Circ.*

"Black Oxyd of Copper in Loose Teeth.—Dr. Hoppe strongly recommends, when the teeth have become loosened, rubbing some of the black oxyd of copper well into the gums every morning by means of the finger.

This induces the contraction of the hyperæmic periosteal vessels, and the teeth again become firm. Various stimulating applications will produce the same effect, but with injury to the gums."—*Berlin Med. Zeit.*—*Ibid.*

Alloys of Aluminum.—"The London *Mining Journal* states that very useful hard alloys may be made of aluminum and steel. By adding only eight per cent. of aluminum to common steel, a great improvement is effected, and a steel very similar to Bombay wootz, which is celebrated for making sabres, is the result. If common Kaolin, which contains aluminum, is added to iron when being smelted in a crucible, to convert it into steel, an improved product is the result.

"Several of our jewelers and others have lately been endeavoring to make alloys with aluminum and other metals, and with very poor success. As a consequence, we have been frequently interrogated on the subject, for the purpose of pointing out where the difficulty of forming such alloys lay, and how to remedy the evil, if it were possible. A patent lately taken out in England, by E. L. Benzen, of Sheffield, will perhaps throw all the necessary light on this subject that is required. He makes alloys of aluminum, or its oxyd, and other metals, by means of carbon in the presence of the metals, thus: he places an ounce of aluminum and an ounce of copper or iron (or any metal electro-positive to aluminum) in a crucible, mixed with about half an ounce of carbon in the form of powder, when they are placed in a furnace and submitted to reduction by a suitable heat applied for this purpose. The metals are stirred gently while in a state of fusion, until their intimate union is effected."—*Sci. American.*

Solder for Aluminum.—M. Mourey has described to the Society d'Encouragement, in Paris, a process which he invented for soldering aluminum. He adopts an ingenious device for this purpose. In the ordinary way to solder two metals or two pieces of the same metal, all that is necessary, after having prepared the two surfaces which are to be brought together, is to cover them with solder and heat them. This mode of proceeding does not succeed with aluminum. M. Mourey prepares each of the two surfaces with a first solder, an alloy of aluminum and zinc, and then interposes between the two surfaces thus prepared another alloy richer in aluminum. In this manner, the first alloy adheres to the aluminum itself, and the second alloy to the first, and thus a perfectly solid and continuous whole is obtained. The surfaces to be soldered are prepared by being smeared with a mixture of turpentine, balsam of copavia, and lemon juice, then placed on hot coals; and into the parts where the soldering is to take place, the flame of a gas lamp or self-acting blow-pipe is directed. Small pieces of an alloy of six parts of aluminum and ninety-four of zinc are brought into contact with the prepared surface; these melt and adhere to the surfaces, being pressed against them by small tools made of aluminum. This operation is a rapid one; it requires, like any other soldering of this kind, a certain amount of care, but not more than in the hard soldering of copper. In each case, a skill and knack are necessary on the part of the workman, as well as care in adjusting the temperatures, for the melting point of aluminum and zinc are scarcely 100° apart, and there is a fear, whilst melting the solder, lest the article itself should melt at the same time. When the two surfaces have been thus prepared, they are brought together, and kept in contact by iron wires, pincers, etc., as in ordinary soldering; and pieces of the hard solder

(80 of zinc and 20 of aluminum) are then placed at the points of contact, and the heat from a lamp is then applied, and the second solder melts, runs in, and adheres to the two layers, of soft solder, and thus forms a strong joint. The articles thus prepared are sufficiently strong and homogeneous to allow of their being reworked, and the joints will bear filing."—*American Druggists' Circular*.

MISCELLANY.

"ECKARD found that the saliva secreted under the influence of irritation of the sympathetic nerve, is different from the fluid obtained through irritation of the glandular branch of the fifth pair. The former is less clear and transparent, and, above all, more thick and viscid than the latter. A more accurate description the author promises on a future occasion."—*Brit. and For. Med.-Chir. Rev.*

KLAATSH and STICH infer (*Ibid*) from experiments with quassia, sugar, salt, and tartaric acid, applied by means of a very thin camel's hair brush, to the tongue of persons blindfolded, that "a narrow border round the margin of the tongue, varying from two to four lines in breadth, is subservient to taste. In most persons, it lies in the middle of the margin; in some, it approaches the upper surface; in very few, it appears on the lower surface. The root and the posterior third of the tongue, as well as a part of the soft palate, are also subservient to taste. Other parts of the mouth or fauces, or of the other organs, are not instrumental in this sense."

"From the experiments which have been made with the chlorates of potash and soda, it appears," (*Ibid*), "that the action of these salts depends more upon the acid than upon the base, but that the greater solubility of chlorate of soda, and its less marked taste, ought to give it the preference. M. MUSSAT employed the chlorate of soda in six cases of mercurial stomatitis with very favorable results, and the patients stated that this salt had a less disagreeable taste than the chlorate of potash."

In the course of one of the Gulstorian lectures, Dr. WM. ADDISON states, (*Medical News*, September, from *British Medical Journal*), that "in animals where the hair is party-colored, and the fibrous tissue of the skin is patched in corresponding lighter and darker shades, we have observed the pia mater patched in similar shades, the pigment being incorporated in the coats of all the small blood-vessels. In some birds of dark plumage, the periosteum is almost black, the tendons are tinged with black, and the coats of the blood-vessels are spotted black."

Dr. FARIS, of Marlborough, Tenn., states (*Nashville Journal of Medicine*), that "in the course of last year, he has cured upwards of one hundred cases of scurvy by a solution of nitras argenti. Cauterizing once or twice, effectually cures." The *Peninsular and Independent*, in commending the practice, observes, that this "remedy has been used in the West for years, not, perhaps, as a specific, but as an adjuvant, in cases of scorbutic gums." It is well known, that like many other abnormalities, this affection is frequently but a local manifestation of constitutional derangement, and, therefore, requires general as well as local treatment. This should be of such a character as to improve nutrition, and give tone to the tissues and general system. The remedies most appropriate for this purpose are in the main, the vegetable and mineral acids, and the stimulant and alterative tonics and astringents, along with suitable hygienic measures.

THOS. H. HARDING, Esq., reports a case (*London Lancet*, September) in which, after much solicitation, he extracted the first upper molar tooth for the removal of a persistent pain of the right side of the face. As was anticipated, the tooth proved to be perfectly sound, and was, therefore, after being out about five minutes, replaced within the socket and retained therein by the pressure of the antagonizing tooth. It gave some uneasiness for about a week, which then passed away, and the tooth is now sound and serviceable. The "patient afterwards went under the care of Dr. B. W. Richardson, who treated him for gouty facial neuralgia, with decided success."

It is stated (*North American Medico-Chirurgical Review*) that Mr. SCHIFF has proved, by chemical analysis, that the blue color which pus sometimes presents, is owing to phosphate of iron in an amorphous state. It is this same salt which gives the blue color to animal remains which have been interred for a long time. The demonstration of this fact is owing to Mr. Nickels, who has found in human bones, phosphate of iron crystallized in the form peculiar to the vivianite of mineralogists.

Considerable attention is now being paid to the development of sanitary science, and meritorious works are being published to show its value and necessity, prominent among which, is one by Dr. FARR, bearing the striking title of the "Money Value of a Man." In noticing several of these works, the *London Lancet* says that an interesting calculation has been made by Mr. MCGOWEN to show the advantage of the present saving. Thus "the whole annual gain amounting to 3,750 lives, each productive life being reckoned as worth £300, after deducting the expense of the works, which are estimated to last at least twenty-five years, the total saving to the borough of Liverpool will amount to some fourteen and a half millions of dollars."

Dr. GEORGE HARLEY states (*British Medical Journal*) that "the human saliva contains both sulphocyanide of potassium and iron. The latter substance, however, can only be detected after the organic matters contained in the secretion are destroyed by burning." He has also "ascertained that a person of nine stone secreted between one and two pounds of saliva in twenty-four hours," and says, "that the gastric juice does not destroy the power possessed by the saliva of transforming starch into sugar; consequently, the digestion of amylaceous food is continued in the stomach."

The *American Druggist's Circular* says that "Mr. CONDIE, of Battersea, near London, has recently introduced a *disinfectant fluid*, the chief constituent of which, is 'condensed oxygen.' It is said not only to deodorize and disinfect perfectly, but also to destroy absolutely the cause of infection. Unlike chlorine, it is not poisonous, does not evolve any unpleasant smell, and may be employed to purify water. In short, it is a near approach to ozone, and it is not improbable will soon come to fulfill very important purposes both in hygiene and medicine."

The same Journal states that "some interesting experiments of E. BROWN SEQUARD, have brought him to the conclusion that a tissue is not of necessity dead when it has lost its vital properties or its natural actions for a period of one or even several hours; and for this reason that its properties and its actions may be restored through the aid of blood charged with oxygen."

It also mentions that LEMARY and MASCH found that it is a "rule with iron which has remained a considerable time under water, when reduced

to small grains, or an impalpable powder, to become red hot and ignite any substance with which it may come in contact." This may also be the case with all other metals, and especially those readily oxydized, as molecularly promotes chemical action and spontaneous combustion.

The *London Lancet* states that a remarkable tumor, occupying the inside of the cheek of a female, was excised by Mr. PAGET through the mucous membrane of the mouth. It had produced considerable deformity of the face, causing great swelling, which extended almost to the orbit, and on its removal, was discovered to be adipose in character, and nearly the size of a fist, its situation being looked upon as most unusual.

"In the ptyalism of pregnancy, after the failure of ordinary astringent means, LAMËSTRE succeeded in obtaining a cure in a few days, by the use of pastilles containing about half a grain each of iodide of potassium. Four or five of these were used at regular intervals through the day."—*L. Union Médicale and Journal Mat. Med.*

"According to Dr. JAUZER, the immediate danger of death from sudden loss of blood, may be averted by artificially restricting the circulation to the trunk and head, laying the body horizontally, and elevating the limbs and compressing the femoral artery against the ileo-pectineal tubercle, and surrounding the limbs with a firm bandage. The chief difficulty lies in the length of time during which the compression may be necessary, (half to twelve hours)."—*Half-Yearly Abstract of Medical Sciences.*

Mr. R. T. KNIGHT, of Philadelphia, has been making some curious experiments in casting metals in insulated moulds. He observes (*Scientific American*, August 13th) that "the great object of the experiment was to discover, if possible, some improvement of practical advantage in the arrangement of the crystals of the metal." Both the mould and the person pouring in the metal were insulated, "and the result was peculiar. The casting thus produced of common iron was white as silver, and hard as cast steel." Mr. CALVIN ADAMS, of Pittsburgh, has obtained the same results. Further experiments have led the former gentleman to the conclusion, that this modification of the metal is not of much practical importance, as after "it has passed through the annealing furnace, it becomes the same thing as if it had been soft when put in, and is very brittle." This subject seems to be worthy of careful and extensive investigation, with not only iron but all other metals, as it may lead to some discoveries of great practical value.

In the course of an able article on medical microscopy, (*N. Am. Med.-Chir. Rev.*, July,) Dr. J. H. PACKARD thus notices the parasites which infest the mouth: "In the mucus which collects around the teeth, upon the edges of the gums, there is found a parasitical animal consisting of a single cell, and called the *denticola hominis*. A species of alga, the *leptothrix buccalis*, inhabits the dorsum of the tongue, and the spaces between the teeth. The *leptomitus hannoverii* occurs on the mucous membrane of the tongue and pharynx in some low forms of disease. Perhaps, however, the most important of all these parasites is the *oidium albicans*, the fungus which is found in aphthous ulcers of the mouth."

In the same journal it is stated that M. LAFFONT recommends the use of gunpowder for toothache. Thus, "put a teaspoonful of powder into a piece of fine linen, and apply this little bag to the painful tooth. He has employed this remedy in twenty cases. All the patients told him that it provoked, but only for a few instants, a slight pungent heat in the mouth,

but that the toothache completely disappeared." Nothing is said about the etiology or pathology of the affection, to indicate the particular cases to which it is applicable.

The same journal says, that Dr. BURDOCK recommends corrosive sublimate as a specific, never-failing remedy in facial neuralgia. He has used it for more than thirty years, and always obtained a prompt and permanent cure, no matter how severe the disease. The following is the formula which he employs: Of the Liq. hydrarg. chlorid. corris., of the Prussian Phar. which contains in f. $\bar{3}$ j. of water, one grain each of corrosive sublimate and hydrochlorate of ammonia; take f. $\bar{3}$ iss. To this, add vini semin colchici, f. $\bar{3}$ ss., and of the mixture give from thirty to sixty drops every two hours, followed by a draught of some mucilaginous liquid.

"Professor Napoli, of the Academy of Naples, has discovered that in the lava issuing from Vesuvius there is a large quantity of the very rare metals, selenium and tellurium, combined with titanium, lead and iron." —*American Druggist's Circular*.

A writer in the *Atlanta Medical and Surgical Journal*, affirms that "if a file or watch-spring saw be wetted with a solution of camphor in spirits of turpentine, it will cut through glass as smoothly and rapidly as through iron. This is an *old* fact not generally known."

The *Scientific Annual* says that "it is proposed to introduce a vast improvement in the casting of metals, by substituting compressed carbon for the sand or clay usually employed. The advantage to be derived is, that the same mould may be used over and over again without injuring the smooth surface of the cast metal."

So much strong and reliable testimony has now been given in favor of Bibron's antidote for the poison of the rattlesnake, that its formula and mode of administration should be generally known. They are as follows:

R.	Potassi Iodidi,	-	-	gr. iv.
	Hydrarg. Chlorid. corros.			gr. ij.
	Bromini,	-	-	f. $\bar{5}$ v.—Mix.

and give gtt. x., in two tablespoonsfull of brandy as often as necessary.

Dr. A. LEE observes (*Jour. Mat. Med.*) that Bayberry bark, when chewed, acts as a sialagogue, and has proved useful in toothache, and local congestions of the neighboring organs."

The *Scientific Annual* says that Mr. E. DAVY prepares a new cement by melting in an iron vessel two parts of common pitch and one of gutta percha. It is kept either liquid under water, or solid, to be melted when wanted. It is not attacked by water, and adheres firmly to metal, wood, stone, glass, porcelain, ivory, leather, parchment, paper, and various other substances.

Dr. THEO. MACK writes (*Buffalo Medical Journal*) that "Professor Michel has cured a case of facial neuralgia, by section of the infra-orbital, inferior dental, buccal and lingual nerves." Of course this procedure is only justifiable in extreme cases.

He also states that the "*Gazette Med. de Lyon* publishes the following: An inhabitant of Brazil had a bull cut, and the animal died tetanic. He ordered the bull to be buried, but his slaves ate the meat by stealth. One of them was immediately seized with tetanus, and died in a short time; two days afterwards another died of the same affection in the hospital, and a third was also admitted suffering in the same manner, but was likely to recover."

According to Dr. L. TURNBULL, (*Medical and Surgical Reporter*), Mr. J. Hutchinson regards syphilitic inflammation of the cornea as dependent upon inherited syphilitic taint, and among other reasons for this belief gives the following: "That in almost all cases the subjects of it present a *very peculiar physiognomy*, of which a coarse, flabby skin, pits and scars on the face and forehead, cicatrices of old fissures at the angles of the mouth, a sunken bridge to the nose, and a set of permanent teeth, peculiar for their smallness, bad color and *vertical notched edges*, are the most striking."

M. BARRALLIER has employed (*Champonière's Journal and American Druggist's Circular*) the muriate of ammonia in 259 cases of hemicrania and other forms of neuralgia, and with success in 202 cases. Hence he infers that it is the best therapeutic agent that can be exhibited for the various neuralgic pains of the cranium. He gives it in scruple doses dissolved in water and syrup of orange peel, every half hour, until three doses are taken. He observes that this mode of exhibition exercises great influence over the curative action of the remedy; and furthermore, that it does not properly develop its curative actions, until the pain has reached its highest degree. In the early part of a paroxysm the potion has an *unimportant* influence, but when the suffering of the patient is intense, it acts with marvellous promptitude. The writer can corroborate this latter statement, as he has seen it act with wonderful rapidity in relieving the most intense neuralgia, after the most powerful narcotics had failed. He exhibits it in ʒss. doses, in simple water, every half hour or hour, until four doses are taken, according to the recommendation of Dr. Watson, from whom he obtained the idea, years ago.

Dr. FAURE, of Paris, recommends the inhalation of chloroform through one nostril, the other being left free for the passage of the air, to prevent the occurrence of over anæsthesia. The introduction of air by the mouth must not, however, be neglected, though he appears to overlook or disregard it.

POLYTECHNIC COLLEGE OF THE STATE OF PENNSYLVANIA.—We have received the Seventh Annual Announcement of this excellent Institution, and are pleased to learn of its increasing prosperity and usefulness. As the first in this country devoted exclusively to the teaching of the applied sciences and industrial arts, it has peculiar claims upon the community, and should be encouraged by all friends of progress. It affords superior facilities for acquiring a knowledge of very important branches of science and their practical application to the arts. This knowledge is not only very desirable and useful, but very much in demand at the present time, as it is a necessity for intelligent enterprise and a guide to productive industry. All those, therefore, who are seeking new and lucrative professions should enter this institution and apply themselves to the acquisition of that knowledge so essential to success in the higher departments of life. The following will exhibit the practical character of this Institution, and the branches taught therein: "The plan comprises a Preparatory Department and five Technical Schools; the School of *Civil Engineering*, the School of *Mechanical Engineering*, the School of *Mines*, the School of *Chemistry*, and the *Agricultural School*. The first four are in full and successful operation; the fifth, although complete in its scientific instruction, is, for want of the requisite means, yet unprovided with a model farm."

Further information may be obtained from Alfred L. Kennedy, M. D., Market and Merrick streets, Philadelphia.

THE
DENTAL COSMOS.
NEW SERIES.

VOL. I.

PHILADELPHIA, NOVEMBER, 1859.

No. 4.

ORIGINAL COMMUNICATIONS.

PRACTICAL HINTS.

BY J. D. WHITE.

WE left off in our last article on practical hints in the September number of the DENTAL COSMOS, that it frequently happens that when the dead fragment is given up by the living portion, that however small the remnant left may be, there is still an ulcerative surface. In such cases, we treat with creosote until it disappears. We seldom plug a root until it will bear wedging tightly with cotton, without exciting pain or looseness of the tooth. If wedging with cotton produces looseness, it might, if persisted in, rouse up inflammation; and when it is only filled with cotton it is readily remedied. The extravasated blood, after a tooth is plugged, often gives rise to a great deal of trouble. We have often plugged a tooth, and in a few days the patient would return with elongation of the tooth, with purple appearance and sponginess of the gums, and upon removing the plug considerable bleeding would ensue, showing that there had been engorgement of the blood-vessels of the surrounding parts. After the bleeding subsides we plug the case again, after passing tannic acid as low down in the roots, for a few days, as possible; and when the tooth has become firm again in the socket, sometimes ulceration sets in and never subsides, and the tooth is lost; or you may plug the crown and drill the neck of the tooth, if it be a valuable one, and prolong its usefulness a few years. We have very frequently plugged the crown cavities, to save them from decay until the root would get in condition for plugging, and then we would plug the crown cavity over again as well as the orifice in the neck of the tooth. In ulcerating roots we frequently do this; we therefore drill teeth as a *part* of the treatment, not as a *final* treatment,

as some are in the habit of doing. We are aware that some are in the habit of plugging a tooth immediately on excising the pulp, as far down the root as possible; we do not consider this sound practice, because of the fact that every wound bleeds for a certain length of time; and after that there is effusion of coagulable lymph, and which may be more than can occupy the space between the plug in the root and the fragment of blood-vessels and nerve left in the apex. A clot of blood, serum, or lymph, in such cases, in the root of a tooth, is not so readily absorbed as in other tissue, and, therefore, becomes in these cases a cause of trouble. Hence the canal of the root of a tooth must be dry before it is fit to plug; besides, the hemorrhage in such cases does not cease until the anastomosis is properly and firmly established. It is true, that all the blood, before the pulp was excised, returned through its appropriate branches, must now return by another set of vessels, the same as in any other wound in any other part of the system. We do not think that there is sufficient importance attached to this part of the subject. If a tooth be plugged immediately after excising the pulp it will soon become loose, and the gum present a turgid appearance, but which subsides when the plug is removed. We always ask the patient to suck the air from the cavity as much as possible, to excite bleeding on removing the plug, because the traction on the engorged vessels around the apex will relieve the case speedily. Sometimes we place the nozzle of the syringe into the root when it is half full of water; drawing the piston outward under such circumstances produces more direct and powerful traction on the apex than can be done by the patient. This practice is useful in abscesses, as it is more sure to open them; and the parts are generally too sore for the patient to effect much suction. We constantly hear of the pulp having been removed to the *very apex* of the root, and plugging the same; this we do not desire; in many instances, where the pulp has been removed by breaking away at the point where it is attached to the membrane stretching across the apex of the root, we have had alveolar abscess to ensue in a short time; we always regard it as best to remove the pulp only as far down the root as a small probe will pass, leaving the hair-like vessels and nerves in the canal for an eighth or a quarter of an inch, as the case may be, as healing on neutral ground, as we wish to approach the external membrane as gently as possible, without wounding it or rousing up excited action or inflammation, as all wounds heal by inflammation or by first intention. It is desirable to avoid the former in treating a pulp, while we cannot hope to avail ourselves of the advantages of the latter in such a wound as we make by tearing away the pulp; it is, therefore, a safer way to let nature decide how much of the pulp shall be given up. To remove the pulp to the apex, is to wound the external membranes; and, of course, the treatment of them is out of our reach in most cases. We remarked in our thesis, which we prepared in 1842, that

if we could get rid of a pulp without wounding the external membranes, we could treat a tooth as well as the hand could be treated safely after cutting off one finger; but perhaps the comparison is not correct, as the tooth undergoes morbid changes after the pulp is removed, which is not the case with the hand.

We cannot regard the foregoing papers as any more than drawing a line of general treatment, as the constant occurrence of special cases will always require the exercise of the judgment of the practitioner. Treating the pulp is not all that is necessary to preserve a tooth; that is but half the duty of a dentist done. As the crown and root of the tooth now undergoes rapid morbid change, the question arises how shall we proceed to preserve it in a healthy condition for the longest possible space of time? and this involves the plugging of the root and crown, which we will consider in our next.

(To be continued.)

BRUSHING TEETH.

BY J. D. WHITE.

"Too much of a good thing" is an old saying which applies well to all the affairs of life, and to none, perhaps, with more force than to the subject of brushing the teeth. The great negligence manifested on the part of many persons, in regard to cleansing their teeth, induced dentists to urge in strong terms the necessity of doing so *ad libitum*, without regard to the extent to which it might be imprudently practiced. We know that we are attempting to cross a strong current of settled practice to raise our voice against a now almost universal and time-honored custom. We know that we are getting in the way of heads of families who have as much trouble to get their children to brush their teeth as to keep them out of the sugar bowl. We do not intend to be understood as disadvising the use of the brush among children as much as they can be induced to use it, as it is not likely that they will abuse its use, but to precaution the older portion of the community against its excessive use. The early impressions made on the minds of some persons with regard to brushing their teeth while they are young, increase with their years, and their ability to use the brush increases also, until the early impressions become a fastidiousness, and the brush an abuse. Some patients tell me that they brush their teeth from three to five times every day, and use powder twice, and still they cannot keep their teeth clean. This is too often, and powder should never be used unless it is needed, and that can only be known by the patients examining their teeth to see if any sediment is not removed with the brush only. The brushes, as a general rule, are

entirely too hard, and the tufts of bristles too large and too close together ; with such brushes it requires too much pressure to cause the bristles to dip between the teeth, and thus makes too much friction on the prominent portions of the teeth, where, indeed, the least is required, as the motion of the lips and the contact of food keep those parts clean. Patients not unfrequently present themselves who have just given their teeth a good brushing before leaving home, and we can trace the track of the brush by a red line crossing the festoons of the gums that dip down between the teeth ; and sometimes the mucous membrane is cut through, and yet only the prominent portions of the teeth are clean. Some persons say they do not feel right unless they brush their teeth at least three times per day ; it is a matter in which our feelings should not be taken as a rule to govern us. We should judge by the eye and the understanding what our teeth require. Such persons as referred to above often say to us, " Doctor, how shall I keep my teeth clean ? I am sure I brush them three or four times a day—after every meal, when I rise in the morning, and before I retire at night—and still I cannot keep the tartar off, and my gums bleed at the slightest touch, and I use the hardest brush that I can get." We say to such, Your brush is too hard, and a brush is not sufficient ; you must use a *tooth-pick* and a soft brush ; a soft brush can be pressed down between the gums and teeth, and the tooth-pick, properly made, must be passed between the teeth backward and forward, as if you were filing, to dislodge the particles of food that accumulate between the teeth, and the sediment that gathers between the free margins of the festoons of the gums and teeth ; otherwise your gums will always bleed, loosen from the necks of the teeth, and gather tartar. To clean lateral surfaces of the teeth, where the brush does not come in contact, a soft hickory stick should be used, with a little powder on it. A soft hickory stick makes a kind of brush ; it is the best kind of wood for the purpose we know of that is convenient for every one to obtain. The clarified quill is the best thing for a tooth-pick, because it is hard and stiff, when dressed properly. The tooth-picks of the shops are useless, as they are too soft, and cut too much to a point. The quill tooth-pick should be blunt at the point, and the neck long, say about half an inch, and about a sixteenth of an inch wide ; this kind of pick will push through from between the teeth any food that may have lodged, while the sharply-pointed one only pierces the fragments of food without dislodging them ; and if the blade of the pick is too wide, it wedges between, where the teeth touch each other and the gums, and in this way the gum is unnecessarily wounded before the extremity of the pick has passed entirely through between the teeth ; besides, there can be no motion or rubbing effort made with the pick while it is between the teeth. The tooth-pick should be used after every meal, to dislodge every particle of food that may have gathered during mastication ; but not the brush—it is useless wear on the teeth, and an ineffectual way to remove sub-

stances from between the teeth. The kind of brush we invented, and recommend, consists of three or four rows: the outside rows stand obliquely outward, so that when an effort at brushing is made, the bristles bend easily and pass under the free margins of the gums; and the tufts of bristles are small and unequal in length, like the *penetrating hair-brush*. In the old-fashioned brush there are too many bristles, they clog between the teeth, and do no good, or only jump from the prominent part of one tooth to another. The four row brushes are the same as the three row, except that the two middle rows stand toward each other and make a stronger brush.

These brushes are imported from London by S. Simes only, (now Hazzard, Twelfth and Chestnut Sts. ;) but there is a great many manufactured in this city; they are not as good, as far as we are able to judge, as the English manufacture; why this is we are unable to tell. Many persons object to the use of the tooth-pick, regarding it as vulgar; we do not regard anything as vulgar that is necessary to keep the teeth properly cleansed. It is much more vulgar to present unhealthy and bleeding gums that is in our power to remedy. Many dentists tell their patients that they cannot brush too much; this is not true. It is unreasonable to suppose that we cannot wear out teeth when every other substance yields to friction; by the time that excessive brushers arrive at middle life, they discover, when it is too late, that they have brushed too much. We have been obliged to require a great many of our patients within the last few years to limit the use of the brush. When the teeth become fully developed at adult life, the too frequent use of a hand-brush helps to dislodge the gums from the necks of the teeth around the outer border, (labial and buccal margins,) exposing the bone; and if it is not naturally sensitive, it soon, as a general rule, becomes so; and besides, the friction soon wears a groove into which the bristles run, and sooner or later cuts a deep gutter which will expose the nerves if the grooves are not plugged. In such cases, where we see mischief has been done, we advise the use of a cloth only and a stick in front, and the brush on the inner sides of the teeth toward the palate and tongue.

(To be continued.)

CONSTITUTIONAL CAUSES OF DENTAL CARIES.

BY J. D. WHITE.

WE have not had the pleasure of meeting the Pennsylvania Association of Dental Surgeons, for want of time, during the discussion on the above subject; but it will not be out of the way to add our mite in its consideration by a communication to the Journal. We do not intend to take ex-

ception to the views advanced by some of the members, as our own are not yet fully decided upon, nor do we fully comprehend some points in the course of the discussion. We are perfectly satisfied that it is the solvent properties of the acrid fluids of the buccal cavity that directly cause a destruction of the teeth, but whether teeth which are naturally good soonest decay, or those which are naturally indifferent, we are not willing to positively decide. If the general system changes for better or worse, and the teeth decay, it is hard to say whether it is owing to the constitution of the teeth or the constitution of some other organs. The general constitution may change, or be temporarily vitiated, and destroy the best teeth, but it is not due to the inherent constitution of the teeth; there are bad teeth constitutionally, inherently, but last a lifetime, while the best are soon lost. To separate these ideas is to get a proper understanding of the subject. As one of the members justly remarks: "The teeth are in the most vital condition (we suppose in the best condition to resist caries) when the dentine is most perfect, and this is when the earthy and the animal matters are both present in proper proportions." Now, if we see teeth going to ruin which are naturally good, we must look to the general system for a remedy as well as local treatment. We gave some strong cases illustrating this in an article on the use of lime-water and prepared chalk, some time since; but if we see badly constituted teeth going to destruction, and the general system is in a good condition, it would be taking great risk to interfere with the general health in such cases. We cannot make up our minds whether good or bad health favors most the development of those fluids which act most rapidly upon the teeth, at least in many cases, as the following will show: A Dr. B., about seven years since, called to consult us about his teeth, as they had commenced to decay on their approximal surfaces, and by a white line along the margins of the gums. He was apparently in the very best condition of health, rather portly, nervo-sanguine temperament, bordering on the lymphatic. We remarked to him that in all probability he had been in delicate health during his early life, but within a year or two he had been improving in health. He replied that it was true, but how did I know that, as he had never seen me before. We remarked that we had observed that when the constitution or the health changed, it not unfrequently marked the period of the change of the teeth, either for better or worse, and in his case, if his teeth had been decaying for a long time, he would have lost them, as it was a kind of decay that could not well be arrested by plugging. He observed that it was very remarkable, as he was a medical doctor, and had always said to his patients that the decay of the teeth was due to bad health, but he saw by his own case that his doctrine was not true, but he had never thought of it before. His teeth had been good all the early part of his life. He commenced the use of lime-water and prepared chalk, and has only had two teeth plugged since

the two left superior bicuspid, and that only within the last four weeks ; he is in the most perfect health.

Case second. A young lady, in her twentieth year, whom we have known for fifteen years, and has enjoyed uninterrupted health, as she says she never was sick a day in her life, always had a moderate amount of decay in the teeth, not very rapid. She called to consult us in May last ; we found a number of plugs were required ; we finished her teeth on the twenty-eighth of May, and made another appointment one month ahead, so as to meet her again before decay would have gone too far ; we have been in the habit of making these precautionary engagements in such cases, or many teeth would otherwise have been lost. She returned to see us, however, on the sixteenth of June, and, to our astonishment, we found three deep cavities on the necks of the front incisor teeth and two on the necks of the inferior left bicuspid ; the necks of the teeth had been exposed by the recession of the gums ; we dressed those cavities out, as plugs would show, and made a stick to fit the cavities, and instructed the patient to drill out these cavities every day with prepared chalk, and see me every month ; the bottoms of these cavities remain sound and smooth up to this time ; we have plugged several cavities on the approximal surfaces since the twenty-eighth of July. There is no odor observable on the breath of this patient. The temperament of this patient is well balanced.

Case third. A gentleman, Mr. E., about fifty years of age, naturally good teeth, has been troubled with dyspepsia for a number of years ; has been taking muriatic acid for two years, and for the last three months his teeth have decayed with great rapidity, beginning on the approximal surfaces and on the necks of the teeth, as the gums have receded, and runs up toward the cutting edges of the teeth, the enamel turns very white ; the decay is so rapid that we have to meet the patient every three or four weeks to prevent the nerves from becoming exposed. Since he commenced the use of the prepared chalk the labial surfaces of the teeth have ceased decaying ; this patient has a sweetish odor on the breath ; the temperament bilious nervous.

These cases prove nothing, as far as we can understand, except that teeth may decay more at one time than another, whether they were naturally good or not, if the fluids of the buccal cavity change ; in fact, the decay of the teeth is so general, that if it all depended upon the unhealthy condition of the system, and that alone produced it, we would surely be a sickly set. It is a matter to be deplored that the most healthy-looking children are brought into us every day suffering with pain, and not a sound tooth in their heads, and the cause to us is still a secret.

COLORING MATTER FOR PORCELAIN.

BY ABR. ROBERTSON.

A FEW years ago I made a series of experiments with the hope of finding some alloy that should, more nearly than gold, resemble in color the teeth; and at the same time when amalgamated should not be subject to oxydation, and, therefore, free from a very serious objection to silver, when amalgamated and used for fillings for the teeth, to wit, its unsightliness. I did not succeed in finding what I sought, but in my groping I found what many an other has found before, especially when making chemical experiments—what I did not expect, but was of great value to me, and continued to be, so long as I continued to make “blocks,” and what must be a saving of a great deal of very hard labor to any one engaged in the manufacturing of any description of teeth, whether in blocks or single.

Knowing that platinum resists oxydation more strongly than any other of the metals, I hoped to find that it would combine with some of the others that can be amalgamated, and which, like silver after being amalgamated, becomes indurated, and in such quantitative proportions that the platinum should protect the mass from oxydation. Among my experiments I placed equal parts, by weight, of platinum and tin upon a piece of charcoal, applied a jet of flame with my blow-pipe, and was surprised to observe how easily and how readily they fused and combined together. Easily and readily, however, do not express the beautiful phenomenon presented by their fusion and combination. There was a suddenness about it that was exciting. A slight detonation, and a tiny, evanescent cloud arising from it that was beautiful. And, although I was surprised at the phenomenon, I was more surprised at the result of the combination. The sensible qualities of the metals were entirely changed. From the union of two white, rather soft, malleable metals, I had a mass almost as black and as friable as a piece of the charcoal on which it lay! On perceiving this fact, the thought immediately occurred to me that I had discovered a method by which the immense labor of reducing platinum, whether in the form of sponge or of filings, to the degree of fineness necessary to make it a suitable coloring matter for the enamels of artificial teeth, would be avoided. And by a few further experiments, I proved that not only all that labor of grinding, and grinding, and grinding was saved, but that I got my material so absolutely fine, that only about one-half of the amount was required to produce the same effect as when prepared from either the sponge or the filings in the ordinary way.

Please present these facts to that class of our brethren who manufacture teeth and blocks—a class not too communicative generally in such matters—with my compliments.

WHEELING, VA., *October, 1859.*

INTRA-UTERINE INFLUENCES.

BY J. L. S.

ALTHOUGH it is still a subject of discussion whether an impression produced upon the mind of a pregnant female could influence the fœtus in utero, there is no doubt that the contents of a gravid uterus are in danger of being expelled in consequence of a severe shock produced in any part of the general system.

As many remarkable cases of non-development of certain organs have been reported as following the witnessing of the removal, or mutilation, of corresponding organs, by enciente mothers, and as it is alone by statistical records that we can arrive at the truth in all scientific researches, permit me to direct the attention of the profession to the frequent cases of non-developed and partly developed enamel, that we meet with, and the non-development of entire teeth, and sometimes, though rarely, of entire sets of teeth.

Let me urge upon every one who has the advancement of our science at heart, to make diligent inquiry into the circumstances of every case that may come within his reach, that thereby a record may be made and an approach to the truth, in regard to cause, be arrived at.

We all know that anything that would interfere with the proper production of the formative pulp must necessarily affect the teeth; and as it is produced early in fœtal life, is it not possible that many injuries to the permanent, as well as the temporary teeth, are communicated through the mother? If that fact can be established, it is our duty, as guardians of the public, as far as our profession enables us, to forewarn mothers of the evils they may entail upon their progeny by culpable neglect of their own teeth, and of the necessity of deferring painful operations until they are in a proper condition to have them performed.

CHAMBERSBURG, *October*, 1859.

ELECTRICAL ANAESTHESIA IN DENTAL OPERATIONS.

BY W. G. OLIVER.

I LEARN by the dental periodicals of the past year, that at least three committees have been appointed by different dental societies, to experiment and test the merits of the electric current in dental practice, and they have all reported adversely to its usefulness. According to report, a vast majority of the dentists who have used it also pronounce against it. Notwithstanding all this condemnation, I assert most emphatically *that, if properly applied*, electricity is a perfect local anæsthesia in *almost every case, and more uniform in its action than any other agent heretofore*

used, either locally or otherwise. My object now is to lay my process before the profession, with a request that those gentlemen who composed the committees above referred to, also the professors of the dental colleges, will take the matter in hand and test it thoroughly after the following method, and either condemn or sustain it as it may deserve. The apparatus consists of an electro-magnetic machine with a metallic rod at the end of each cord, the rod at the positive pole to be connected by means of a steel hook; second, an extensor, which is a piece of flexible conducting cord about a foot long, with a metal loop at each end—one *very small*; third, a conductor which is composed of a gutta-percha tube eight inches in length, and a piece of copper wire with a small piece of sponge at one end, the wire to pass through the tube and turn into a loop at the other end, drawing the sponge close up to the tube. The battery should be placed conveniently in rear of the chair. The mode of operating is as follows: Extracting a tooth, set the battery in action, place a rod in each hand of the patient, and pass the piston into the helix until the muscles of the wrists begin to contract slightly; note the position of the piston and withdraw it, take a piece of spool thread (either double or single) and pass it through the *small loop* of the extensor, and tie it into a loop, full large enough to pass over the tooth; cut off the ends, dip the loop into water and slip it over the tooth, twist the cord until the thread is close to the tooth; take the rod of the *positive* pole from the patient—let him grasp the other (*negative*) in both hands, unhook the positive rod and connect with the extensor; the forceps may now be placed in position, and the current introduced by passing the piston slowly into the helix; if the patient winces the least, let the piston remain stationary a few seconds, then pass it still farther, *slowly and carefully*, until the measure is obtained that was passed through the hands, or is so strong as to border on the disagreeable. The tooth may then be removed deliberately—the *slower* the *better*. Extracting roots of teeth: measure the susceptibility of the patient in the manner before described, withdraw the piston and attach the *conductor* to the battery, wet the sponge and place it against the part to be operated on; the piston may now be introduced until the desired amount of current is generated, and the root or fang may be removed by the best mode that suggests itself. The length of the operation is of no consequence, for if directions are followed, no pain will be inflicted; in all cases of extraction or excavation of sensitive cavities, it is best to use the extensor and thread bandage, but in other cases, such as removing fangs, extirpation of living nerves, etc., the conductor may be used. In this way the current may be applied with great benefit in all cases where pain is usually inflicted. *Great care and delicacy* is necessary in introducing the current—on that depends success. I am compelled to be brief in this article, and may not succeed as I could wish in being understood; a written description of any

operation can never compare with the exhibition of the operation itself. This mode of using the current has been eminently successful in my hands, and of course will be with others, if properly used. If the Dental College should deem this subject of sufficient importance to delegate one of their number to wait on me, I will exhibit the apparatus in daily use and give full instructions for their benefit free of charge. I shall also be happy to explain my process to any member of the profession who may favor me with a call.

BUFFALO, N. Y.

PROCEEDINGS OF DENTAL SOCIETIES.

PENNSYLVANIA ASSOCIATION OF DENTAL SURGEONS.

REPORTED BY GEO. T. BARKER, D.D.S.

THE annual stated meeting of the Association was held at the Dental College, on Tuesday evening, October 4th, at eight o'clock.

President, Dr. Dillingham, in the Chair. Members present, Drs. Fouché, Roberts, Peirce, McQuillen, Flagg, Buckingham, Hayhurst, Townsend, Harris, Garretson, Van Osten, Hopkins, and Barker.

The minutes of previous meetings were read and adopted.

The committee on fee-bill and printing constitution reported progress. Committee on procuring a charter reported that the Association could obtain a charter of the courts in this city at a cost of ——— dollars. On motion, the report was received and committee discharged.

The delegates appointed to attend the National Dental Convention, held at Niagara Falls, reported that they had attended the same, and had co-operated with the delegates present from other organizations in the formation of a Convention upon a representative basis. On motion, the report was received.

The committee on membership reported the following named gentlemen as candidates for membership: Drs. F. Yardley Brown, of Reading, Penn.; J. Hayhurst, of ———; John McGrath, Chas. Woodnut, Chas. E. Hopkins, and J. Greely Ellison, of Philadelphia. On ballot, they were each elected.

The Treasurer's report was received, audited by a committee, and found correct.

The election of officers being in order, the following were unanimously elected for the ensuing year: President, Dr. S. Dillingham; Vice-President, Dr. T. L. Buckingham; Secretary, Dr. George T. Barker; Treasurer, Dr. J. Foster Flagg; Librarian, Dr. C. N. Peirce.

Committee on membership, Drs. McQuillen, Flagg, and Harris. On motion, adjourned.

A monthly meeting of the Association was held on the evening of October eighteenth, at eight o'clock.

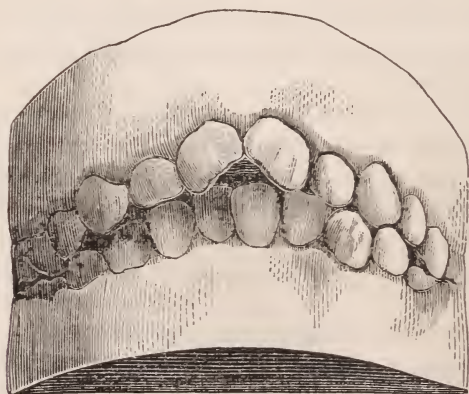
The President, Dr. Dillingham, in the Chair. Present, Drs. Harris, McCurdy, S. S. White, McQuillen, Garretson, F. Flagg, Buckingham, Townsend, Kingsbury, Fitch, Hopkins, Woodnut, Harbert, and Barker. The subject for discussion being

"THE CAUSES AND TREATMENT OF IRREGULARITY,"

was opened by Dr. Harris, who would divide the causes of irregularity into two or three divisions. 1st. Constitutional peculiarities. 2d. Mechanical causes. In the first may be included those arising from congenital malformations; in the second we may also include those arising from interference with nature's designs in the premature extraction of the temporary teeth. Congenital irregularity is usually seen in the incisors, while mechanical irregularity is usually seen in the cuspids and bicuspid. If the temporary cuspid is removed too early, contraction of the dental arch will ensue, and, as a consequence, the permanent cuspid being unable to take its normal position, is thrown posterior or anterior to the arch. He could recall a case where a family had suffered from hereditary irregularity of the incisors for three or four generations. Arch was sharp and contracted, had extracted the second bicuspid, and had used the different appliances for expanding the arch, but did not meet with success.

Dr. J. Foster Flagg stated that he coincided with the views of Dr. Harris in relation to the classification of causes of irregularity, that they evidently were hereditary and mechanical; the hereditary generally affecting the incisors, while the mechanical causes influenced the bicuspid, the cuspid being about equally affected by both; he would present at this

FIG. 1.



time a case involving irregularity, Fig. 1, resulting from both causes, in which the superior central incisors were instances of hereditary deformity, while the inferior second bicuspid exemplified mechanical deformity. The

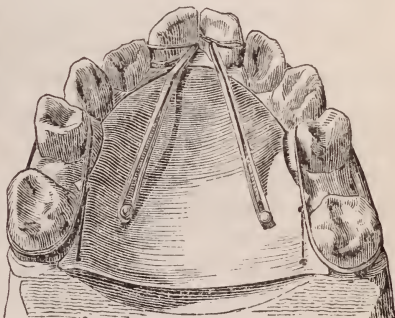
patient, a young lady, fourteen years of age. The treatment consisted in removing all the second bicuspid, above and below, throwing india-rubber tubing ligatures around the six-year molar left inferior, and the left inferior first bicuspid and cuspid, drawing the two latter backward and into the arch, at the same time passing a silk ligature around the lower incisors (Fig. 2) in such a manner as to force into position an overlapping left central.

FIG. 2.



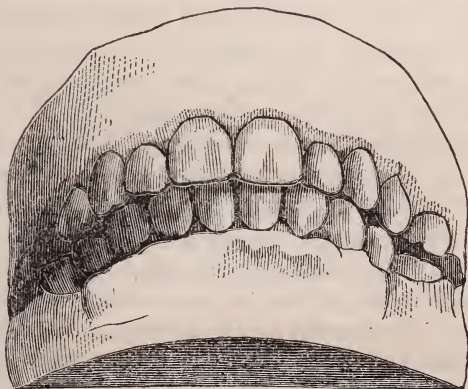
In the upper jaw a plate was adapted to the palate, secured by silk ligatures to the first permanent molars; pins were placed in the plate in such a manner as to allow of the attachment of two elastic bands, which were secured by silk threads to the central incisors, (Fig. 3,) drawing upon the mesial face; other bands were so arranged as to draw upon each lateral angle of the centrals, passing between the centrals and laterals from their palatine faces,

FIG. 3.



and running along the labial and buccal faces of the teeth unto the first molar of either side; tubing was thrown around the remaining superior bicuspid of either side and the molar, for the purpose of approximating these teeth, thus affording space for the proper placing of the irregular

FIG. 4.



centrals. By this arrangement, nine ligatures were exercising traction at the same time, gradually and beautifully performing their work of correction, (Fig. 4.) With the view of preventing the periosteal irrita-

tion from becoming periostitis, both local and constitutional treatment was adopted, as the exigencies of the case seemed to require,—gentle purgatives, as derivants, and tinct. aconiti, rad., were used generally; chlo. potas. and plumb. acet. as local antiphlogistics, and solution aquæ ammo. con. as an antacid. The cure was effected in just two months; and, as the patient averred, without any pain or inconvenience worth mentioning.

Dr. Harris thought bands should be avoided as much as possible for the correction of irregularity, and preferred silk ligatures to any others; thought those appliances which he had lately seen recommended in the *Cosmos* were of little value, as the pressure must necessarily be indirect, and the force being alone on the clasps or bands, would tend to destroy the teeth.

Dr. McQuillen alluded to the fact that irregularity may be either congenital or acquired. The first was frequently due to hereditary transmissions; and the latter, in the majority of cases, to premature extraction of the deciduous teeth, though recognizing, at the same time, other influences as prolific causes. Of the congenital origin, abnormally small maxillæ are frequent accompaniments and causes. The most difficult and complicated case that could be presented to the practitioner for treatment is one in which the superior maxilla is unusually small; the alveolar arch contracted; the inferior maxilla preternaturally large, with the lower teeth striking outside of the upper, and the osseous tissue more dense and unyielding than ordinary. Such were the difficulties, Dr. Westcott informs us, he had to contend with, in the case reported in the *DENTAL COSMOS*. After a careful examination of the models, and a long conversation with Dr. W., detailing the trials and failures that had attended his efforts, he felt assured that the appliances employed were not only ingenious, but the most efficient that could have been used under the circumstances. His convictions on this point were still further confirmed a few days back, when an opportunity was afforded of examining the patient, who, at Dr. W.'s request, had been placed in his care during her attendance at a school in our city. At first sight it was evident that a complicated irregularity originally existed, combined with a dense osseous tissue that required a decided, long-continued, and well-regulated force to overcome. The facility with which the patient, in his presence, demonstrated her ability to adapt the apparatus (by an elongation of the spurs) in each progressive step, not only proved an intelligent appreciation on her part, but also the simple nature of what appears to be, at first sight, a complicated appliance. As successful results are the strongest arguments that can be offered in support of any fixture, he could neither agree with those who objected (without a trial) to this appliance, or with Dr. W. in ignoring the use of plates altogether. Each, without question, will prove successful in cases where the other would be a failure. For his own part, he pre-

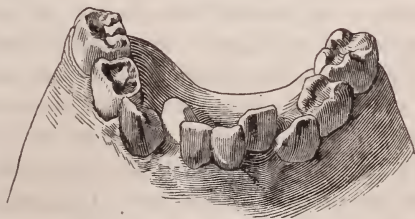
ferred the eclectic course, that, failing in one thing, tries another and another, until success attends the effort.

Of his own practice, in former years, he had been in the habit of employing silk ligatures, thrown round the necks of the teeth and tied to the old-fashioned bar passing in front of them. The bar similar to Fig. 5 can be made of gold or silver, and is perforated at certain points, with holes which, when it is adjusted, Fig. 6. should be opposite the teeth to be acted on. The silk ligatures are passed Fig. 5. through these holes preparatory to being



tied. This plan is a very slow and unsatisfactory one, and after trying it for some time, he had abandoned it altogether, substituting in its place, within the last three years, a modification of the same, made by passing a thin, flat file through the bar, from above downward to the holes cut in it, thus forming an apparatus such as Fig. 6. In lieu of silk ligatures he also employs india-rubber rings, cut from *very small* French tubing. When applying this arrangement, as the rings are so small that it would be a difficult and clumsy mode of procedure to stretch them with the fingers, he uses right and left curved approximal burnishers for that purpose; passing each of these inside of the ring and drawing them apart, the rubber is extended, and with facility slipped over the crowns of the teeth to be regulated. Having accomplished this, the bar is placed and retained in position by passing one of the burnishers under the rings and drawing them forward and carrying each through the openings made by the file. A number of teeth can be acted on in this way at the same time; and as the fixture is easy of application, the patient or guardians may readily assist the operator by renewing the rings every day or two. As a simple case in illustration he would direct attention to the model presented, Fig. 7, in which the lateral incisors of the lower jaw

FIG. 7.



stand considerably within the arch. The patient, a little girl, aged eight years, had the bar and rings described above applied, and at the expiration of a week or two, the teeth were brought into line. To retain them in position until an ossific deposit could take place in the alveolus, he had a thin plate of silver driven up on a metallic die so as to cover all the

front teeth. This was worn until the teeth became firm. In conclusion, he would direct attention to the model in his hand, Fig. 8, in which it

FIG. 8.



will be observed the right superior central incisor is considerably outside of the arch. The patient, a lady, aged thirty-five years, from whom this cast was obtained, came under his care about three years ago. From childhood she had labored under the peculiar deformity called *limber jaw* or *under-hung*, with all the lower front teeth striking outside of the upper, due to a preternatural elongation of the inferior maxilla. A short time before placing herself in his hands, by some means or other the right superior central incisor got outside of the lower teeth, and had gradually driven further and further forward by the occlusion of the lower jaw, until it had become not only very prominent, but quite loose in the socket. As the age of the patient contra-indicated any attempt at a radical reform of the original difficulty, (the protrusion of the lower jaw,) the only course that appeared to be justified was to get the incisor back to its former position, so that when the jaws were closed it would strike inside of the lower teeth. This was accomplished by throwing an india-rubber ring round the incisor, and then stretching it over the crown of the first bicuspid of the same side. The contraction of the rubber in a few days drew it into place. To prevent the front teeth from striking, during this period, silver caps were placed on the molars. He is in the habit of seeing the patient two or three times a year, and finds the tooth retaining its original position.

Dr. Buckingham thought that before we began to treat the cases we should be sure they were irregularities; all permanent teeth come through irregularly. This is caused by the permanent teeth being so much larger than the temporary. He thought if the dentist would only wait and let

nature do all she could in the majority of cases, there would be nothing left for them to do. But he admitted that there were cases which required assistance. This assistance could be extended in two ways, viz., by extracting, and by mechanical forces. He would be very certain before he extracted, that the irregularity could not be corrected without it, because many times great irregularities were caused by extracting teeth too soon; and these were very difficult, if not impossible to correct. Related the cases of two sisters who resembled each other very much both in size and features. The elder had a beautiful full set of teeth, and all the features of the face were regular. The younger had four bicuspid teeth extracted—two above and two below, to make room, as she stated, for her other teeth. Her face presented a flattened appearance.

In using mechanical means, there were two or three things to be kept in view: first, the pressure should be as nearly in the line the tooth was required to go as possible; and next, the comfort of the patient; and third, the simplicity of the apparatus. For spreading the bicuspid teeth he had used plates, swaged to fit the mouth with clasps to press upon the teeth to be moved. By opening the plate the pressure could be continued as the teeth were forced out. If the points of the clasp pressed too much on the gums, they could easily be bent up if they were put on properly. When the upper front teeth were irregular from the lower biting in front of them, he used the inclined plane.

Dr. Kingsbury said the principal causes of irregularity of the teeth, as already stated, are hereditary and mechanical. I have met with a number of cases in my practice, where irregularity caused by a contracted alveolar arch existed in nearly every member of the same family, the predisposition being evidently inherited from the mother. Within a few months past I have treated three cases in the same family. These cases, though quite different in form, and by no means equally bad, were all caused by malformation of the superior maxilla, of a congenital character, the impression being received from the maternal side.

In one case the cuspidati were above, and directly anterior to the lateral incisors, the first bicuspid teeth and lateral incisors approximating closely, and the central incisors forced into a diagonal position upon the alveolar border. In another the lateral incisors were posterior to the central, being forced inward toward the palate. In the third and last case the right superior central incisor was inclined toward the palatine arch, and when the mouth closed, fell far back of the inferior incisors.

My method of treating such cases may differ in some respects from that of other members of the profession. When it is necessary to extract one or two bicuspid teeth to make room to bring the protruding cuspidati into their proper position, I invariably extract the second bicuspid teeth unless the first are in a carious condition, or when being sound, they ap-

proximate so as to touch the lateral incisors. In such cases I extract the first instead of the second bicuspid.

I take an accurate impression of the mouth, and fit a plate with as much care as if it were for an artificial denture, letting the plate for the superior teeth extend well back over the palatine surface, but not so far as to annoy the patient.

I attach clasp and braces for the double purpose of firmly supporting the plate and preventing those teeth that are in proper position from being moved. If the occlusion is such that the inferior incisors, as is often the case, interfere with the regulation of the irregular teeth, I cap a molar on each side. I then, supposing the case to be one where the cuspidati stand outside of the regular curve of the superior maxilla, attach a small loop or ring of No. 20 wire to the palatine surface of the plate, at such point as the relative position of the teeth to be treated may indicate.

By means of a gold spiral spring rather shorter than the distance between this ring and the tooth to be moved, one end of which is secured to the tooth by a silk ligature, and the other drawn back and hooked into the ring, a degree and kind of traction may be applied, best adapted to effect the desired object. A small strip of good gum-elastic may be substituted for the spiral spring. But there is the disadvantage of its soon losing its elasticity and requiring frequent removal.

The gum-elastic rings made from tubing, so highly spoken of by some, have never yet served me any good purpose. I have always found them to lack the elasticity and toughness of the ordinary dark-colored gum.

In those cases where the superior incisors incline inward toward the palatine arch, and strike inside of the inferior incisors, I resort to a device somewhat different from any that I have ever known to be used or described by any member of the profession. It may not, however, be new to others.

Instead of applying a metallic bar upon the labial surface of the teeth, attaching its extremities by ligatures to the molars or bicuspid, as recommended by Fox, and in frequent use by dentists, and then by means of ligatures passed around the teeth and fastened to this bar, drawing them into the desired positions, I adopt a very simple, but most efficient appliance for accomplishing the same object. To such a plate as I have already described, I solder as many tubes or hollow cylinders as there are teeth to be regulated.

These tubes are from four to five lines in length, and one and a half lines in diameter. Perhaps I can convey a more accurate idea, in the absence of a drawing, by their resemblance to an ordinary percussion cap, being open at one end, but rather longer, and of smaller diameter.

These tubes are soldered to the plate with the open end facing the lingual surface of the teeth to be moved, and distant from them about

two lines. Into these tubes are fitted small solid cylinders of wood, which serve as spurs to press upon the teeth. When applied, a small piece of ordinary gum-elastic is put into the tubes, filling half their length. The small cylinders or spurs of wood are now inserted, so that when the fixture is adapted to the mouth, one end presses upon the gum-elastic, and the other upon the tooth, thus producing a uniform and persistent pressure.

I have found this appliance to be more satisfactory in its effects than any other I have used or seen. I think it possesses most if not all of the advantages secured by the recently described and ingenious contrivance of Dr. Westcott, without its complication and unavoidable incumbrance to the mouth.

I would not, however, be understood as depreciating the appliance of Dr. Westcott, or doubting its efficiency in the case to which it was applied. But I am inclined to the opinion that a force consisting of a moderate *steady* and *continous* pressure is better suited to irregular teeth than any that can be obtained from screws of any kind.

When a tooth requires to be turned upon its axis—as is often the case with the superior central incisors when they assume an obliquely or diagonal position upon the alveolar arch—I attach a gold band to the tooth, so as to embrace it firmly. To this band on that side which is nearest the alveolar border, I attach a strip of gold, of such thickness and width as to form an elastic spring, and long enough to reach to the first and second molars, to one of which the end of this is secured by a ligature.

By this means a force is constantly applied in the direction I wish to move the tooth.

Recently I have used the tube and cylinder wood to remedy this form of irregularity with so much success, that I am inclined to think they will entirely supersede the other appliance in my practice. While the spur of wood presses upon one side of the tooth to force it into its proper position, the other side is drawn in toward the plate or prevented from being moved anteriorly, as the case may require, by a ligature from that side to the gum plate.

Dr. McQuillen remarked that certain dental writers have advocated the extraction of the anterior permanent molars instead of the bicuspid in treatment of an irregular denture. This practice he could not but regard as injudicious, except in cases where the teeth are so badly decayed and broken up as to render all efforts directed toward their preservation futile. In the removal of the molars there is double the extent of masticating surface lost that there would be in the extraction of the bicuspids. Entertaining such views he invariably removes the bicuspids when extraction is indicated.

Dr. Foster Flagg alluded to the use of "inclined planes," and thought they were only useful for such patients as were exceedingly anxious for the correction of their individual irregularities; referred to the frequency

of their having been used fruitlessly for months and even years; thought that if in any given case in which "planes" seemed indicated, a change for the better had not taken place in *two weeks*, another apparatus should be constructed; as a general rule, preferred an apparatus which did its own work to one which depended upon the assiduity of the patient for its beneficial action; thought that whenever the inclined plane principle was used, there should be employed the adjunct of the elastic band over the head and chin; had seen the good results of its employment both in his father's and his own practice for the past fifteen years. Preferred tubing to any other tractile force; preferred it to spiral springs, on account of its facility of employment and adaptation, and superior cleanliness; decidedly opposed to the "screw" adaptations; believed in *continuous pressure*; spoke of the utility of a knowledge of knots, and of the proper adaptation of coarse and fine saddlers' silk, and of that which is loosely twisted and hard twisted; in certain positions waxed, and in others unwaxed. In conclusion, referred to satisfactory results obtained in growing teeth rapidly by ligatures, under the free edge of the gum.

Dr. Fitch considered the subject under discussion one of vast importance, both to the community and the dental profession; accordingly he had given it much attention in his practice during the past ten or twelve years.

He had seen instances of irregularity that, from congenital and mechanical causes, as well as from an idiosyncrasy of constitution, required the exercise of much patience and skill to bring the teeth in their proper place in the dental arch.

He had used, with more or less success, most if not all the appliances now employed in the profession for the correction of irregularities, and never found any difficulty in moving teeth by the use of elastic tubing, save in some instances the force applied was too severe and continuous, producing much pain from periostitis. Hence did not like this tubing in some cases as well as other appliances. He had used, with much satisfaction, an elastic silk cord, usually found in millinery stores. This is much more mild in its action.

A very interesting and complex case of complete irregularity of the superior denture came under his practice a few months since. The subject was twelve years of age; highly nervous temperament; in the occlusion of the jaws the superior molars, bicuspid, and lateral incisors were inside of the inferior teeth. The central and lateral incisors were much turned upon their axes; giving, from a front view, a V-shaped appearance to the dental arch. The canine teeth were just erupting externally, about two lines above the margin of the germ; their cusps slightly discernible.

This case was successfully treated by fitting accurately a gold plate to the palatine surface, having thick gold standards posterior to the teeth to

be moved; through these standards screws were applied, pressing the teeth out to their proper place—the teeth being held in situ by the use of a gold bar nicely adjusted to their labial surfaces and properly attached to them by ligature.

To turn the teeth upon their axes, recourse was had to the gold bar and elastic ligatures. In the course of eight or ten months, the arch having been sufficiently spread, the cuspidati had taken their proper position, presenting a beautiful and regular denture, much to the astonishment and delight of patient and friends.

In another case where the cause was congenital, a failure was experienced. The two central incisors were separated nearly half their width; they were brought together, after applying a power ligature several weeks; but on removing the force, would return to their former position even after they had been kept together several months. The subject was over twenty years of age. It is possible that success would have crowned the effort, if the teeth had been kept together a much longer time, affording an opportunity for ossific deposit.

At the close of the meeting Dr. Buckingham presented to each member present some linen tape covered with fine corundum, intended for polishing fillings in the mouth.

"It is made by first wrapping the tape around a flat plate of metal so as to cover the metal entirely, the plate keeping the tape stretched smooth; it is then sized with a thin flour paste, and when this has dried, it is covered with glue dissolved in warm water, and while wet fine corundum is sieved over it, and allowed to dry."

The plate presented the appearance of a fine piece of sand-paper, and as it can be made by any one in a short time, it will doubtless be found an exceedingly useful article. Dr. Buckingham had used it, and found it answered the purpose intended—when once tried we think it will not be abandoned.

The subject of "Causes and Treatment of Sensitive Dentine" having been selected for discussion at the next meeting, the Association then adjourned.

INDIANA STATE DENTAL ASSOCIATION.

REPORT of committee on the order of business for the meeting to be held at Indianapolis the first Tuesday in January, 1860.

Subjects for discussion :—

Prop. 1st. Should Pivot Teeth be Inserted? If so, under what circumstances and in what manner?

" 2d. Treatment of Inflamed Dentine.

" 3d. Treatment of Dental Periostitis and Alveolar Abscess.

Prop. 4th. Mechanical Dentistry, including all the various modes of constructing Artificial Dentures.

“ 5th. Filling Teeth.

“ 6th. Professional Intercourse.

“ 7th. Unfinished and Miscellaneous Business.

The committee would respectfully urge the profession throughout the State to attend this meeting, as matters of considerable moment to all practicing dentists will be discussed ; as, for example, the establishing of a uniform fee-bill.

J. P. ULERY,	} Committee.
A. M. MOORE,	
W. R. WEBSTER,	

We regret to announce that the names of Drs. Horace Parker, of South Carolina, J. F. Johnston, and P. P. Hunt, of Indiana, were omitted in the list of members of the American Dental Convention published in the September number.

GEO. T. BARKER, D.D.S.

EDITORIAL.

SENSITIVE TEETH.

WE would again solicit attention to the treatment of sensitive teeth, especially on the part of the younger members of the profession ; we mean more especially sensitive dentine of deep-seated cavities ; we regard it as quite as important to treat a tooth for sensibility of the bone as for an exposed nerve. An old and expert operator may do a good operation on a sensitive tooth without any palliative treatment ; but a young operator needs all the advantage he can obtain to render his operations successful. Even after an old operator has talked his patients into bearing a painful operation for the sake of their good, it not unfrequently happens that if they think over their sufferings for awhile, they will not submit to it again ; or, if they do, it is with the greatest reluctance. It is not true that it is our duty to inflict pain for the patient's good, if it be in our power to prevent it, even if it requires a little more of the patient's valuable time, or requires a few more visits to our offices to alleviate it. It is our duty, for humanity's sake, to strip our operations of the terror that not unfrequently attends them, if it be in our power, independently of the work, under all circumstances, being better done when it can be done deliberately when the patient is at rest, and we ourselves operating without being under too much restraint.

We are led to these remarks by the daily complaints made to us of how much pain patients endured under very simple though important

operations in filling teeth. We are quite sure that a great many teeth are plugged when the pulps are nearly exposed, that afterwards become the cause of trouble by prolonged sensibility, and often inflammation and death of the pulps, which, if they had been subjected to proper palliative treatment, would have been comfortable and successful for all time to come. If a prolonged impression be kept up on a nerve of a tooth, in some temperaments at least, through the medium of a gold plug, that it will end sooner or later in more trouble than if the pulp had been exposed and destroyed at the time of plugging. We are perfectly sure that when decay approaches closely to a pulp of a tooth, that the pulp is in a morbid condition, and not unfrequently in a congested state; that if such congestion is not relieved, that the pulp will become inflamed, while, if it had been relieved before the plug was inserted, it would be a success. This accounts for a great many cases giving rise to the necessity of removing the plugs after a time when the operator believed, at the time of plugging, his case was safe.

We never plug a tooth in doubt whether the nerve is slightly exposed or not. When we have a doubt we apply creosote or tannic acid, until we have so palliated the tenderness of the parts that we can make a thorough examination; and even with this precaution we are often caught at fault, and are obliged to remove plugs, and treat for exposed nerve. We never depend upon a thin stratum of dentine becoming thickened so as to protect a nerve by a deposition of osteo-dentine, cementum, or whatever it may be; we have never been blessed with such happy termination of a case. We constantly have occasion to remove plugs that we have inserted ourselves when the nerves were not exposed at the time of plugging, and of other cautious operators, years after the plugs have been inserted for the alleviation of pain from inflammation, suppuration, and sloughing of the pulp, many cases, indeed, even ten years after they had been plugged.

It seems to us that the teeth of the present age cannot be treated with the same impunity that they have been treated by the dentists of earlier times, or that our experience does not by any means square with theirs; and we are more inclined to believe that the difference is more in the flimsy and susceptible character of the teeth, than the difference between the observation and practice of different operators.

J. D. W.

PLANS THAT HAVE BEEN TRIED AS THE BASIS OF NATIONAL DENTAL ASSOCIATIONS.

IN a recent article published in this Magazine, offering certain objections to the plan of organization presented as a basis for the proposed AMERICAN DENTAL ASSOCIATION, the writer remarks: "The aim is high,

but the way it is intended to be accomplished is about the same as that of former associations that have failed to accomplish their high purpose." With no intention of replying, *seriatim*, to the dignified and high-toned criticism that pervades the entire article, as reference has been made to the failures of former associations, we propose merely to present a brief, retrospective view of the origin, basis, and course of action of the only two national dental organizations that have existed in this country, and shall leave to others to discover the analogy (which we cannot) that exists between these and the proposed association.

The first step toward a national organization took place eighteen years ago, when a number of prominent practitioners, in different parts of the country, met together and established the AMERICAN SOCIETY OF SURGEON-DENTISTS. The basis of this association proposed that there should be acting and honorary memberships. The candidates to the first submitting to an examination on the part of a committee appointed for that purpose.

For a number of years after the establishment of this society considerable interest was manifested in its transactions by the members, and the prospect of future usefulness was bright and encouraging. Eventually, however, the unwarrantable authority was assumed by the association of dictating to members the modes of practice that they should pursue. Internal dissension was the result—the nature and extent of which we have no acquaintance with, and desire none—a number of members were expelled; others lost their interest in the meeting, and at last the society, which was never large, dwindled down, year after year, until at the fourteenth annual meeting only *nine* members were present—notwithstanding the fact that a new constitution and by-laws, *which was to rejuvenate the organization*, had been adopted the preceding year.

The limited attendance at this meeting convinced those present that the members generally had lost all interest in the society, and that every prospect of further usefulness was gone. With these convictions, a series of resolutions were offered, directing the president to issue a call to the members, to meet together and consider the propriety of a dissolution. These resolutions were adopted, and at the next annual meeting—the same number of members being present, *nine*—the subject was taken up, discussed, and laid over until the next annual meeting, when, *ten* members being present, it was acted upon, and the society dissolved.

Thus, after a brief existence, a society which had done much good, given the first impulse to associated effort among dentists, and, if the proper course had been pursued, would still have been in existence, as the oldest national scientific association in the country, was brought to a close. The antagonistic spirit that occasionally disturbed its equanimity, weakening the interests of members, is regarded by many as the cause that eventually led to the dissolution. That this had something to do with it,

is a fair presumption. But, even with this, if there had been sufficient vitality in it, such a result could not have ensued. Other societies have passed through such experiences, survived them, and are now performing a greater work than they ever accomplished before. The correct explanation will be found, we think, in the fact that the society, while losing some members entirely, and the interest and sympathy of many others, made no effort to secure the young talent and energies of the profession, and failing to receive fresh additions to its ranks, it ceased to grow, and, in accordance with an immutable law of nature, repair not being equal to waste, death ensued as a necessary sequence.

At the same time that the proposition for a dissolution of this association was presented, a suggestion was advanced that an effort should be made to form another society, without any restrictions, so that every one in the country claiming to be a dentist could be received as a member. In accordance with this view, a memorial was drawn up and signed by many practitioners, calling upon the profession in general to meet together and deliberate upon the propriety of forming such a society. The meeting took place, and resulted in the establishment of the AMERICAN DENTAL CONVENTION,—a yearly mass gathering with *no constitution, by-laws, or qualifications for membership*.

The four years during which this body has been in existence, with little or no variety, the same topics have been presented, session after session, for discussion. In the selection of subjects no effort has been made to develop a spirit of investigation, research, and experiment on the part of individual members; and limited as the range of subjects have been, the loose and imperfect manner in which they have been treated has made the published transactions a frequent theme of comment and animadversion in the journals. These facts, combined with the conviction that, by having its portals open alike to the educated and ignorant, it is doing nothing toward elevating the professional standard, has induced many who gave the movement a hearty support in the beginning, to hold entirely aloof from it.

In conclusion, we would remark that a national dental association upon a representative basis presupposes that each State, county, or local society sending delegates to such a body should have a committee appointed for the purpose of ascertaining the qualifications of every candidate applying for membership.

J. H. M'Q.

SERUM IN PULP CAVITIES.

SINCE reporting the experiments (published in the October number) demonstrating the permeability of dental tissues; on three different occasions, after thoroughly removing the nerves from teeth, we have washed out the cavities by injecting water through a syringe; dried them per-

fectly with tissue paper, and then with fine root-pluggers, packed cotton tightly in the pulp chambers, and filled the cavities of decay with wax. Each patient was then dismissed until the following day, when, after wiping the parts about the tooth perfectly dry, napkins were introduced, as if preparing to fill a tooth. The wax and cotton were then removed, and the cavities of decay alone filled carefully with Slayton's preparation. The patients were dismissed again and requested to return in two days. At the expiration of that time the same precautions having been observed with regard to external moisture, the fillings were removed, and on passing a portion of *perfectly white* tissue paper into the pulp cavities, it absorbed a fluid that gave a *rosy tint* to the paper, indicating in the most decided manner the presence of *serum* there.

J. H. M'Q.

REVIEW OF DENTAL LITERATURE AND ART.

BY J. H. M'QUILLEN, D.D.S.

A PRACTICAL TREATISE ON OPERATIVE DENTISTRY. By J. TAFT, Professor of Operative Dentistry in the Ohio College of Dental Surgery. With Eighty Illustrations. Philadelphia: Lindsay & Blakiston, 1859.

POSSESSING, as the dental profession in this country has for the last twenty years, a periodical literature, many of the contributions to which have evinced a high order of literary talent, combined with a thorough knowledge of the theory and practice of dentistry, and an intimate acquaintance with the collateral sciences, it is somewhat surprising that, with the exception of the valuable works of Harris and Tomes, the practitioner and student has had literally nothing, in the shape of text-books, to assist and enlighten the studies of the latter, or serve as works of reference for the former. This is said with a perfect knowledge of the fact that efforts have been made by persons outside of the profession to supply the void experienced and recognized by all; the limited demand for these works is, however, but a just indication of their inefficiency. Under the circumstances, could it be otherwise? Is it possible for those who *have never* been engaged in the daily practice of the profession to fully appreciate the wants or adequately furnish the assistance required as efficiently as the thoroughly educated, scientific, and skillful practitioner can do?

We have long looked forward to the period when this reproach would cease to exist, and, from present indications, trust that the day is not far distant when our libraries will contain numerous standard works of reference, written by dental practitioners in the different departments that at present form the curriculum of dental studies.

In place, however, of rushing upon the world, inadequately prepared, as mere book-makers, those that may feel impelled to attempt such duty should subject themselves to a rigid course of preliminary training, maturing and developing their natural resources and acquirements, until that expansion of views and concentration of thought and effort is obtained which will enable them to produce works that may prove valuable and enduring additions to our literature.

Entertaining views such as these for years, it was with no little satisfaction that we noticed recently the announcement that Prof. Taft was engaged upon the work that at present occupies our attention. Remembering his long experience as a practitioner, the advantage he enjoyed as public teacher in this department, and as contributor to and editor of one of our journals, we felt assured that a work coming from such a source could not but meet all the requirements of the novice and the experienced practitioner in this department.

If, upon a careful perusal of the work, candor compels the confession that our expectations have not been entirely realized, we feel no hesitation in acknowledging that, on the whole, it is a valuable *résumé* of the practice that prevails with the profession in this country.

The title of the work fully defines its extent and purport to be (what it really is) a practical treatise on operative dentistry. The author, commencing with salivary calculi and the methods of removal, after briefly noticing irregularity of the teeth, and then only to direct attention to the effects induced by malposition, passes rapidly over atrophy, exostosis, denudation, chemical abrasion, necrosis, and caries of the teeth, the predisposing and exciting causes, comparative liability to decay, consequences and treatment of caries, comes at once to the general consideration of the instruments and materials employed in the operations demanded, preparatory and successive steps in the removal of decay, formation of cavities, the different modes of preparing and introducing the materials used, and then makes special application of these principles by arranging carious cavities into classes, with their modifications, and carefully describing how each should be filled. After a more extended consideration of this part of the subject than we have found in any preceding work, he takes up successively, inflamed dentine, exposed pulps, and alveolar abscess, with the varied treatment had recourse to in these pathological conditions; this is followed by a description of the manner of inserting pivot teeth, the indications for extraction, instruments employed, manner of performing the operation, accidents liable to ensue, the course to be pursued under such circumstances, and closes the volume with a brief consideration of general and local anæsthetics.

In the above outline of contents it will be observed that the author has confined his attention exclusively to this department of dental science. By so doing he has been enabled to present the most elaborate treatise

that has yet appeared on the subject. Regarding it as a valuable work, and ardently desiring that it may meet with the extended circulation it justly merits, we are, nevertheless, obliged to direct attention to some of the points that we regard as questionable.

Thus, at page 23, in describing the method of removing tartar, woodcuts are presented of the ordinary—and, in our opinion, extremely clumsy—instruments usually found at the depots, while the most useful and efficient instrument that has been devised (we know not by whom) for the purpose is neither described nor figured in this or any other work. We allude to a curved instrument, tapering to a fine point, with three cutting edges, similar to Fig. 1 in the accompanying engraving.



Presenting as it does three keen edges, one on the outer and two on the inner curve, the operator is enabled to employ it in different directions, either drawing to or pushing from him. Instruments such as these, of various sizes, from quite large to extremely delicate ones, will not only prove serviceable in scaling off tartar, but also in removing sharp corners left by the file, and ragged edges around the margins of cavities to be filled. A slight modification of this instrument makes an excavator like the diagram, Fig. 2. The triangular shape of the blade is preserved, but instead of being curved like the preceding instrument, and terminating at a fine point, it is bent at different angles with the shaft, and terminates with an edge similar to the hatchet-shaped excavator; in this way four cutting edges are formed. By a different course of procedure, which will be readily suggested to the mind of the intelligent reader, and to which our attention was first directed by Dr. Buckingham, a hoe-shaped excavator can be readily formed upon the same principle.

Passing on to page 84 we find the following assertions:—

“A tooth that can be filled at all can be filled with gold. This assertion was made a number of years ago; and if it was true then, it is much more true now; for then the adhesive property of gold was not employed at all, or even recognized as available; but now this property has been rendered efficient and practicable. *Then, our best operators did not aim to unite the different portions of gold of which the fillings were composed. The idea that such consolidation could be effected, seemed never to have entered their minds. Indeed, with the instruments and the method of manipulation then employed, this adhesive property could not have been made available;* but, as it came to be recognized, the instruments and the manipulation were adapted to the purpose. Formerly, an ordinary gold plug, when removed from a cavity, would be separated into as many pieces as originally composed it; but now, when adhesive gold is skillfully used, the mass composing a filling cannot be divided into its original parts, but may be wrought into plate, wire, or foil.

"Non-adhesive gold—the modification in which, till recently, it was always employed—would not weld, even under great pressure; but, in the mode in which it is now prepared, it will weld readily and thoroughly."

With due respect to the author, the *unqualified* assertions advanced above are entirely gratuitous and untenable positions. How is it possible to deny that soft and plastic materials, such as amalgam, Hill's stopping, etc., requiring no outlay of force in their use, can be placed in teeth so radically affected by decay that it is utterly impossible to fill, however skillfully and delicately the operation may be performed with gold foil? The propriety or expediency of using these materials, or extracting such teeth, must of course be left to the judgment and convictions of the operator. They are merely alluded to in illustration of a principle.

Again, long anterior to the introduction of *annealed gold foil*, many operators in the profession not only aimed at, but succeeded in introducing fillings, the particles of which were united to each other, so as to form solid masses of gold. In support of this we would refer to operations *that have come under our notice*, performed within the last thirty years, by such gentlemen as Hudson, Townsend, Neall, White, Evans, and others. If the adhesive property of gold was not recognized as available when these fillings were introduced, we would ask how was it possible for the operators to give the boldness and prominence that some of them presented, built out as they were a considerable distance beyond the margins of the cavities? In some instances, even after a considerable portion of the walls surrounding such fillings have broken away, owing to the perfect union of particle to particle, their integrity being unaffected by the accident, they have rendered years of service as useful and valuable operations. Others that have been dislodged under such circumstances present the appearance of molten gold, and give no evidence of the possibility of being separated into as "many pieces as originally composed them." We have several such specimens in our possession, which, without doubt, can be "wrought into plate, wire, or foil." As an evidence that the adhesive property of gold was recognized prior to the introduction of technically adhesive foil, (a form of preparation that we consider open to many objections,) a fellow-practitioner remarked in our presence, over seven years ago, that he could make gold foil stick against a perfectly plane surface; and this has been done by building up the *ordinary gold foil*, in the shape of the crown of bicuspid tooth, upon a piece of coin.

In performing the operations alluded to, the serrated instruments that have been generally adopted by the profession within the last three or four years were employed. Such instruments were found in the possession of the gentlemen named, with the exception of the first, when we entered the profession.

On the examination of the teeth, at page 125, he remarks:—

"When a case is presented, there should first be a thorough examina-

tion; since, by this all the subsequent work will be modified. The points to be noted in the examination are as follows: the temperament; the present health; the constitutional tendencies; the secretions; the saliva and the mucus; the mucous membrane and the gums; the constitution and condition of the teeth; the number of them remaining in the mouth; the number affected; and the extent and nature of the decay, and the character of the agents producing it. By the examination, we ascertain how to proceed in the operation; if much or but little labor is required; whether the operation will be a simple or a difficult one; and if difficult, what circumstances render it so: and, besides, some conclusion is arrived at in regard to the permanency of the operation."

We regret to say that the examination of the teeth is too often performed in a *slovenly* and *imperfect* manner, even by some of our best operators. After a hasty and superficial glance, the patient who has called to ascertain the condition of the teeth is dismissed with the assurance that everything is right. When, perchance, a careful examination would have demonstrated the fact that several of them were seriously affected by decay. In addition, therefore, to the *general* directions presented above, we would offer a few *special* ones, that may assist the tyro, at least, in forming his diagnosis:—

The first indication is to remove the tartar or other foreign substances that may be present, so that a perfect view of the teeth may be obtained. Then, provided with a *clear oval* mouth glass and delicate-pointed probes, some of them as fine as a cambric needle, and so malleable that they can be bent in every direction, the operator should commence at the extreme right or left side of the arch, and proceed round the entire denture, examining each tooth carefully on all its surfaces, noting down, if he thinks proper, the locality of every cavity that is found. These probes will prove useful in detecting cavities that may escape a mere visual examination, particularly on the approximal surfaces. When the teeth are so close to each other that it is impossible to pass the probe between them, and the operator is in doubt about the presence of decay, by wedging the teeth apart with india-rubber, or other substances, every facility will be afforded for a thorough investigation. An accurate knowledge of the relative liability of the different teeth to decay; the surfaces most frequently affected; and the fact that if a tooth is found decayed, its fellow on the opposite side is most likely in the same condition; will assist materially in forming a correct diagnosis. Above all, the young practitioner should be cautioned against relying upon the opinion of the patient in locating the pain of an aching tooth. He should examine carefully for himself, and decide the question to his own satisfaction, whatever may be the plan of treatment pursued. Bearing in remembrance the three varieties of odontalgia: true toothache, (arising from an exposed pulp;) false toothache, (owing to periodontitis;) and sympathetic toothache, (due to diversion of sensation;) and that the existence of the first is demonstrated conclusively

by the peculiar pain induced on touching an exposed pulp with the probe, or on packing cotton in the decayed cavity; the second, by the intense suffering experienced on striking the tooth sharply with an instrument, or on bringing it in contact with the teeth in the opposite jaw; and the third, by finding, after a careful examination, that the tooth complained of is perfectly free from disease, and that a neighboring tooth has a pulp exposed, or is affected with periodontitis,—he will never be guilty of extracting the wrong tooth. At page 206 he remarks:—

“There is but one diseased condition of living dentine that presents any considerable difficulty in the ordinary operation of filling teeth, and that is, inflammation or exalted sensibility. This condition was referred to in the remarks on the treatment of caries, as being one that most generally accompanies decay of the teeth. Whether or not this affection is real inflammation, is a point that has been considerably controverted; and the assertion has been made that it is of no consequence whether it is or not, provided we understand the true method of treating it. This, however, is not to be so readily conceded; for the confession that we do not know what to call a thing, generally implies an ignorance of its character and phenomena: while the term *inflammation* conveys a definite notion, the phrase *exalted sensibility* is very vague in meaning. That it is true inflammation, is the opinion of our best dental writers. The dentine is endowed with the functions of absorption, nutrition, and secretion—characteristics that always imply a susceptibility of inflammation. In inflammation of the soft parts, there are present various indications; as pain, redness, swelling, and increased heat. But in dentine, on account of its peculiar structure, all these indications cannot be manifested: for instance, redness, since the red globules do not circulate through it; nor swelling, since the structure is too dense; nor perceptibly increased heat, since the circulation is of too low a grade. But one of the most definite indications of inflammation, namely, exalted sensibility, is present here in all its force. And there are various other circumstances that indicate this condition to be real inflammation: the same irritating causes that induce inflammation in the more highly organized parts, occasion it in the living dentine; this condition of the teeth is always affected by a general inflammatory diathesis, and their sensitiveness, when there is this general tendency to inflammation, is always increased, and local treatment in such case will commonly be inefficient; a modification of such a condition of the system produces a very corresponding change in the affected teeth; and those remedial agents which are employed in the topical treatment of inflammation elsewhere are successfully used in the treatment of inflamed dentine. From all these circumstances, the conclusion is almost irresistible, that this affection of the teeth is a real inflammation.”

Heartily coinciding with the author, that “the confession that we do not know what to call a thing, generally implies an ignorance of its character and phenomena,” we cannot, however, agree with him in regarding the condition of dentine under consideration as a state of inflammation, or that such “is the opinion of our best dental writers,” when we find Harris, Tomes, White and others describing it as sensitive dentine.

The admission is frankly made, that of the four phenomena presented in inflammation of the soft parts, only one is manifested in dentine—pain. Without intending to enter into a detailed consideration of inflammation, we believe that it is generally conceded by pathologists, that the mere presence of only one of the phenomena is not sufficient to prove the existence of inflammation. As, for instance, *swelling* may be due to emphysema or dropsical effusion, *preternatural heat* to friction or exercise, *redness* may arise from exercise or mental emotion, as in the act of blushing, and *pain* may be caused by pressure, as in dislocation, or by colic.

As the presence of one phenomenon is not sufficient, therefore, to establish that condition, it is fair to presume that the same rule holds good in this tissue as well as in others, and decidedly indicates the non-existence of inflammation in dentine.

The treatment pursued in this condition is one little calculated to arrest the progress of inflammation; but, on the contrary, eminently qualified to increase it, when applied to a part in which it truly exists. Suppose the same course should be carried out in the treatment of *ostitis* or inflamed bone—the tissue to which dentine bears the closest analogy—first cutting out the inflamed part and then introducing in the cavity a foreign substance, such as gold, tin, or amalgam. Would this arrest or increase the disease? And yet such a plan is pursued with the happiest results in treating sensitive dentine.

After a careful examination of the nature of this sensibility, and the influences that develop it, we are disposed to believe that, with some exceptions, it is due to physiological rather than pathological conditions. As a case in point: a patient presents himself, complaining of tenderness in a tooth, which is not *persistent* in its character, and only manifesting itself when the tooth is subjected to variations of temperature, as the contact of cold air, cold or hot fluids, or other substances. Upon attempting to remove the decay, it is found to be exquisitely sensitive, though comparatively superficial; the pain induced by the contact of the instrument, however, ceases almost immediately upon the removal of the excavator from the cavity. In the majority of cases, if the operator persists in excavating, after the first few cuts have removed the upper lamina of decay, the sensibility becomes very slight, or disappears altogether; but, in some instances, the tenderness continues during the entire excavation, and even when introducing the filling. If the dentine of a perfectly sound tooth in the mouth of such person should be suddenly exposed by removal of the enamel, through accident or design, the same intolerance to variations of temperature or the contact of an instrument would manifest itself. Now this only proves that the part is endowed with that vital characteristic of the animal kingdom, sensibility, and that the peculiarities of organization render some individuals more impressible than others.

It has long been supposed that the sensation perceived in the dentine is due to impressions made upon nervous filaments, ramifying through the tubuli, and that a plexus formed by their anastomosis under the enamel offer such an extended surface of nerve substance as to render it the most sensitive point. The disappearance of the sensibility, after this part is removed, has been accounted for by supposing that the nervous current is destroyed by the section of the filaments.

Recent microscopic investigations, by Mr. Tomes, apparently confirm this hypothesis. He remarks, in a paper published two or three years back in the Philosophical Transactions, and reiterates the assertion in his new work, that he found in sections under examination "each dentinal tube permanently tenanted by a soft fibril, which, after passing *from the pulp* into the tube, follows its ramifications." These investigations appear to have been made with a great deal of care, and if his observations are confirmed by a more extended series of investigations on his own part, or that of others, it will determine satisfactorily the cause of the sensation experienced.

In the majority of cases, when treating sensitive dentine, we have more confidence in the rapid removal of the decayed portion with *keen edged* instruments, than in temporizing with chloride of zinc, arsenic, etc. etc.

In conclusion, without alluding to other points that have arrested our attention, we would remark that though the drawings are very well executed, they are too limited in number for a thorough illustration of the instruments employed in operative dentistry.

BRITISH JOURNAL OF DENTAL SCIENCE—JULY.

DEATH FROM CHLOROFORM.—It is difficult to understand how the practitioner of dental or general surgery can be induced to resort to a remedy dangerous as chloroform is generally conceded to be, particularly when the operation demanded is not of a character to warrant placing the life of a patient in the slightest jeopardy. So many deaths have been reported from its use, that even in capital operations the surgeon is not justified in employing it when he can have recourse to an agent as safe and reliable as ether. Dr. Warren some time back detailed ten cases, occurring within one year, in each of which the administration of chloroform was followed by a fatal termination; and ever and anon cases similar to the one below (in which the operations performed did not warrant the risk) are reported from well-authenticated sources. These fatal cases have not been confined to the inexperienced alone, but have supervened in the hands of well-informed and competent practitioners. The liability under such circumstances is materially lessened by the knowledge of the operator, but the danger attendant upon its use is fearfully increased when it is employed by the ignorant and reckless.

Whatever may be the knowledge and experience of those who have seen patients struck lifeless before them by this agent, it seems hardly possible that they can have the temerity to employ it again; indeed when recalling the number of unfortunate cases reported, it is surprising that chloroform has not been abandoned as a general anæsthetic by surgeons, accoucheurs, and dentists in every quarter of the globe. In England, strange to say, notwithstanding the fact that the majority of fatal cases have occurred there, chloroform is used more freely than in any other country. From the first, fortunately for us, ether has maintained the supremacy in America.

“On Tuesday last another death from chloroform occurred at the Royal Ophthalmic Hospital. The patient, a healthy-looking girl of fifteen, was about to be operated on for strabismus. She inhaled the anæsthetic without any unusual symptoms until nearly insensible, when she uttered a sudden and very peculiar shriek. After this she soon became quite insensible; the speculum was introduced, and the operator commenced. The chloroform had been administered on a piece of folded linen, and the time and quantity consumed in the inhalation had been about the average—neither had been measured. Soon after the first snip with the scissors the operator’s attention was called to the lividity of the girl’s countenance, and on the finger being applied to the wrist she was found to be quite pulseless. Mr. Critchett had already forced open her mouth and dragged the tongue forward. Artificial respiration was at once commenced, and without any intermission was kept up for about an hour. For a long time sanguine hopes were entertained that she would recover, as slight gasping efforts at inspiration continued to occur at intervals. The pulse, however, never returned, and at length it became apparent that she was quite dead. Movements of the nostrils, as if in the attempt to inspire, were apparent for at least half an hour after the pulse had ceased. A brandy enema was given almost immediately after the first symptoms occurred, and it was then found that the sphincter ani was quite relaxed. Mr. Critchett, Mr. Bowman, Mr. Hulke, and a large staff of assistants were present, and everything that was thought desirable in the way of treatment was effected with the utmost efficiency and promptitude. The following day a post-mortem examination of the body took place. Dr. Baden, who conducted it, informs us that the most noticeable lesion met with was the presence of air in considerable quantity in the right chambers of the heart. The left side of the heart was empty, but the right contained a small quantity of spumous and fluid blood, with probably not less than two ounces of gas. In the lungs were numerous spots of apoplectic extravasation, probably caused by the very efficient manner in which artificial respiration had been kept up. There was no organic disease in the body. The uterine organs showed that menstruation (for the first time) was just about to be established.”

DENTAL REVIEW, LONDON—AUGUST.

“THE TITLE OF SURGEON-DENTIST.—Annexed will be found the report of a case of some importance to dental practitioners.

“It will be seen that Mr. May, the attorney for the prosecution, pointed out to the magistrate that the use of the word ‘Surgeon-Dentist’ would imply that the defendant had a surgeon’s qualification.

"We conceive that Mr. May's interpretation of the word 'Surgeon-Dentist' is incorrect, inasmuch as it is generally understood to refer to a practitioner who performs surgical operations on the teeth ONLY. Nobody in his senses would think of applying to a 'Surgeon-Dentist' in his professional capacity, except for advice on the teeth.

"The last clause in the New Medical Act states that 'Nothing in this Act contained shall extend or *be construed* to extend to prejudice *in any way* to affect the lawful occupation, trade, or business of chemists and druggists and dentists.'

"Now it is indisputable that the title 'Surgeon-Dentist' has been made use of from time immemorial by dentists, because the title clearly describes their calling. If the privilege of employing this title is destroyed by the New Medical Act, we would ask whether the Act itself is not an anomaly? It says dentists shall not '*in any way*' be affected by it, and yet a magistrate rules that it can be made available to prejudice dentists in a material degree by depriving them of a privilege they have hitherto always enjoyed!

"We need hardly say that we have no sympathy with the defendant Nunn. His case merely serves to bring into notice the working of the Medical Act as regards dentists. It is not our intention to allow the subject to drop; we shall thoroughly sift it, and lay the result before the profession in an early number."

"LAMBETH POLICE COURT.—*First Conviction under the Medical Qualification Act.*—MR. SAMUEL NUNN, a chemist, druggist, and dentist, carrying on business at No. 8 Mount Terrace, Hercules Buildings, Lambeth, attended before Mr. Secker, to answer to a summons taken out under the 40th section of the 'Medical Practitioners' Act, for having unlawfully, willfully, and falsely taken and used the name and title of surgeon, not being duly authorized to take and use the same, against the statute.

"Mr. May, an attorney, attended on behalf of the London Medical Association, to support the summons, and Mr. Barton, the solicitor, appeared on behalf of the defendant.

"Mr. May, in opening the case, said that the proceedings were taken by the London Medical Association, a body that had already accomplished much good, by exposing and bringing to justice the Bennetts and other notorious quacks, and who are determined to use every means in their power to protect the public from all such persons. The summons was taken out under the 40th section of the Medical Practitioners' Act, or, as it was called, 'An Act to regulate the qualifications of practitioners in medicine and surgery;' and which enacted 'that any person who shall willfully and falsely pretend to be, or take, or use, the name or title of a physician, doctor of medicine, licentiate in medicine and surgery, bachelor of medicine, surgeon, general practitioner, or apothecary, or any name, title, addition, or description, implying that he is registered under this act, or that he is recognized by law as a physician, or surgeon, or licentiate in medicine and surgery, or a practitioner in medicine, or an apothecary, shall, upon a summary conviction for any such offence, pay a sum not exceeding twenty pounds.' In conclusion, Mr. May said that he should, by the witnesses he should produce, satisfy his Worship that the defendant had practiced an imposition on the public, for which he had made himself amenable to the penalty in the act he had just quoted, or such portion of it as his Worship might deem sufficient.

"Dr. Ladd was then called and sworn, and deposed, he was the honorary secretary to the London Medical Association, and resided in Lambeth. He examined the printed copy of the registry of the properly qualified medical men he then produced, and could not find the name of the defendant in it, and the absence of the name from it was deemed by the act itself a proof of disqualification.

"Mr. May: You have been to the house of the defendant, and I wish you would describe to his Worship what you saw there.

"Dr. Ladd: Over the door was the No. 8, with the word 'surgeon,' in large letters, then the name 'S. Nunn, Dentist.'

"Mr. May: Did you observe anything on the window, and if so, describe it?

"Dr. Ladd: Yes, there was painted on a square of glass the words 'Surgeons'—the letter s being a very small one, and where it could be scarcely perceived—'prescriptions carefully made up.'

"Mr. May: Was the inscription such as to lead any ordinary person to suppose that Mr. Nunn was a surgeon and made up prescriptions?

"Dr. Ladd: Yes; decidedly so.

"Mr. May here pointed out to the magistrate that the use of the words 'surgeon-dentist' would imply that the defendant had a surgeon's qualification; but this was not true, and he had, therefore, imposed on the public by holding himself out as a surgeon when he was not so.

"Dr. Ladd further stated that on a side door the defendant had a brass plate with his name and the word 'dentist' on it. In cross-examination the witness said he resided and practiced himself in the same neighborhood with the defendant, that he had known him for some three or four years, but could not say that the same inscription had been over his door and in his window before the passing of the Medical Bill.

"John Owen, a carpenter, residing in Kennington Lane, said that a short time ago he met with an accident and cut his hand, and was induced to go to the shop of the defendant for advice from seeing the word 'surgeon' over his door. He also asked the defendant if he was a surgeon, when he nodded his head in such a way as to lead witness to believe he was. He then examined his hand and arm, and made him up a bottle of lotion, for which he charged him 1s.

"Mr. Humble, a surgeon in the London Road, with whom the defendant had lived as an assistant, was called, and proved that he had no qualification beyond that of a chemist.

"Mr. Barton briefly addressed the magistrate in reply to the charge; after which

"Mr. Secker observed that it was quite clear that the defendant had brought himself under the provisions of a very useful act; but as the case was the first of its kind that had been proceeded with, and as it would be the first conviction under the statute, the circumstance was likely to create an unenviable notoriety, and therefore be considered that a small penalty would, under the circumstances, be sufficient. He then convicted the defendant in a penalty of 40s., and 1l. 8s. costs, and also told him that he must at once remove the description over his door and in his window."

As yet we have no legal enactments in our country for the suppression of quackery. And it is questionable whether much good would grow out of such laws if they existed; for it is possible that a person indicted under

such circumstances (though obtaining a notoriety by no means desired) would have his interests advanced rather than retarded, by exciting on the part of many a feeling of sympathy for one they regarded as a victim of oppression. An intelligent appreciation on the part of the community of the difference between true worth and meretricious assumption is much more reliable than all the laws that can be framed.

BRITISH JOURNAL OF DENTAL SCIENCE—AUGUST.

The extract below fully illustrates the axiom that "extremes meet." In no other place in the civilized world would such arrant quackery as this be encouraged or tolerated; and yet Paris—with its learned societies, valuable libraries, colleges, museums, and galleries of art, its men of science, among whom we find anatomists, physiologists, physicians, and surgeons, whose opinions and practice are recognized as law by the medical profession everywhere—is justly regarded as the center of refinement and learning. Amid this cultivation it is a matter of regret that our profession should be degraded by such practices on the part of those who claim to be regular practitioners:—

DENTISTRY IN FRANCE.—(*To the Editor of the British Journal of Dental Science.*)—"SIR,—There is, perhaps, no nation in the world which can so well boast of its charlatanism, in all departments of industry, as that of France. No profession, no trade, in fact no calling which in other countries is generally looked upon with some respect, is pursued here without its numerous representatives of egregious mountebanks.

"To the eye of an English dentist, educated in the school of professional integrity and manly competition, his feelings are shocked at the low trickery seen, not only at the door of almost every dentist, but through all his apartments, and in his very actions, apparently for the purpose of convincing the public that charlatanism is the true element of a good practitioner. Show-cases, containing horrid figures of jaws opening and shutting, and a few gross teeth, filled with lead and smeared over with gold-colored bronze, are as common, not only in the streets of Paris, but in all the principal towns, as the simple brass plate in England, which only says 'Mr. A or B resides here.'

"This system of wheedling is not confined to show-cases and gorgeous apartments.

"A quack makes a mixture of acids and other vile stuffs, which he colors and perfumes, then dons the dress of a knight or prince, and, with an attendant, mounts an attractive and somewhat mysterious-looking carriage, drawn by two horses, and sometimes by four, richly caparisoned, and drives into the public squares, to all the fêtes and holiday-gatherings. He then harangues the crowd for a time on the virtues of his vitriol, which he calls '*Elixir de la Vie, pour les dents,*' and which he avers will cure all maladies of the gums, and in a twinkling give the teeth a durable whiteness unequaled by a row of pearls. This does not fail to bring an accomplice before him, who complains bitterly of pain in several of his grinders. The multitude look on in wonder to see the magic effect of his remedies. His attendant, during the operation, beats, in a most vocifer-

erous manner, a large drum. A few flourishes are given, the sufferer (?) declares himself free from pain, and opens his mouth to the gazing crowd, to show how quick his teeth have been made as white as snow.

"A burst of enthusiasm drowns the thundering noise of the drum, and hundreds of his bottles of elixir are instantly sold.

"Advertisements of an extraordinary character often appear in the public journals. One has just fallen under my notice: 'Grand Maison de Dentition. Monsieur and Madame de S—— announce that they set teeth with diamond pivots, and stop teeth with emeralds.' And in conclusion, they remind the public that 'it is useless to speak much of their new mode of extraction, as the process is entirely by *steam*, and is consequently the most efficacious of any system practiced by other dentists.'"

BRITISH JOURNAL OF DENTAL SCIENCE—SEPTEMBER.

THE LONDON MEDICAL REGISTRATION ASSOCIATION.—We present the following letters merely to show what importance our Transatlantic brethren attach to a mere name or title. For our own part, we have always preferred the appellation of Dentist, if for no other reason than the fact that many who employ the prefix "SURGEON" know as little about the principles and practice of surgery as a child unborn.

"THE QUESTION OF 'SURGEON'-DENTISTS.—The following letters—namely, two from Mr. S. L. Rymer to the Honorary Secretary of the above-named Association, and the reply of Dr. Ladd to the first—have been forwarded to us for publication:—

"College of Dentists of England, 5 Cavendish
Square, London, Aug 24th, 1859.

"SIR,—I am instructed by the council of this college to inform you that they have received a communication from Mr. Brookes, of Banbury, in which that gentleman states that the London Medical Registration Society have, through you, intimated to him that unless he discontinues calling himself a 'surgeon'-dentist, they will feel bound to prosecute him; and you call his attention to the case of Samuel Nunn, a 'dentist,' as a *precedent* for such prosecutions. Mr. Brookes practices as 'surgeon-dentist,' and not, as the council are informed, in a way which would tend to *divide* the title 'surgeon-dentist,' so as to imply that he acted otherwise than legally.

"The council of the College of Dentists, having taken the matter into consideration, have come to the conclusion that the case of Samuel Nunn cannot by any means be considered as a precedent, because it was indisputably proved by the evidence upon which Nunn was convicted that he had led the public to suppose, by an artful contrivance, that he was a 'surgeon,' as well as a chemist, dentist, etc.

"The last clause of the new Medical Act contains a provision which distinctly exempts dentists from its operation in *every particular*. This provision was inserted at the instance of the College of Dentists.

"The title 'surgeon-dentist' is employed (as it has been always) by many of the most eminent and highly-esteemed dental practitioners in England; and it is clear that, if the right to assume it were denied, the last clause of the Medical Act would render the Act itself anomalous.

"The title 'surgeon-dentist,' if correctly construed, does not admit of doubt as to meaning 'an operator on the teeth.'

"If the title be employed, as in Nunn's case, to *delude the public* into supposing that the person assuming it is a 'surgeon,' and it can be proved that the public have been so deluded, doubtless such a person is an offender acting illegally.

"Should the opinion of the committee of the Medical Registration Society not agree with the views of the council of the College of Dentists, the latter would suggest that the question be fairly tried in a London Police Court, when, if there should still appear good grounds for doubt, as to the real *spirit* and *intention* of the last clause of the Medical Act, the matter could be finally settled in the Court of Queen's Bench.

"As the President of the College is also a member of the College of Surgeons of England, it is thought by the council to be desirable that your committee should prosecute some member of the council (not of those also members of the College of Surgeons) resident in London or in the immediate neighborhood, and they would be prepared to defend his case.

"I may mention that I practice, as I have done for many years, as a 'surgeon-dentist;' and for the sake of settling the question, I am willing to be proceeded against.

"The favor of an early reply will be esteemed. I have the honor to be, sir, your faithful and obedient servant,

SAMUEL LEE RYMER,
Hon. Sec. to the Council of the
College of Dentists of England.

To DR. THEODÔRE LADD, Hon. Sec. to the
London Medical Registration Society."

"*To the Council of the College of Dentists of England.*

"The London Medical Registration Association, 5 Charing
Cross, London, S. W., August 31st, 1859.

"GENTLEMEN,—The Committee of the London Medical Registration Association, having maturely considered the subject of your letter of the 24th instant, relative to the right of dentists to use the prefix title of 'surgeon,' without any surgical qualification, I am requested to state on their behalf that at a convenient time they will contest this point, so as to set the question at rest. The committee are of opinion that the decision in the case of Nunn is a precedent, and a very important one, showing that the title 'surgeon-dentist' may be used to draw other business than pure dentistry.

"The committee beg to call the attention of the College of Dentists to the fact, that the fifty-fifth clause of the Medical Act exempts '*dentists*,' not 'surgeon-dentists,' from the operation of the Act. Such a title as the latter named is not to be found in the Medical Act; and the committee do not wish to interfere with the *lawful* occupation of '*dentists*.'

"If, then, part of this clause was inserted at the instigation of the 'College of Dentists,' as has been alleged, how is it that you styled yourselves '*dentists*' if you felt you had a legal right to the prefix 'surgeon?' Again, if the council of the College of Dentists were convinced that they were legally entitled to call themselves 'surgeon-dentists' without having the extra qualification from a College of Surgeons, how is it that their college was not named the 'College of Surgeon-Dentists?'

"The committee differ from the council of the 'College of Dentists' upon the construction of the combined title surgeon-dentist. The committee are of opinion that the word '*dentist*' implies 'an operator on the teeth,' and that 'surgeon-dentist' means that such operator on the teeth has an additional qualification, viz., that of 'surgeon;' and they also think that if such a hypothesis as that advanced by the College of Dentists were allowed to prevail, the Medical Act would fall far short of what was intended and expected from its operation; and the fifty-fifth clause of the Act would then indeed be anomalous.

"The committee consider that the blacksmith who draws a tooth with pincers would have as much claim to the title of dentists as dentists who are not surgeons have to the title of 'surgeon;' in fact, the blacksmith is free to call himself dentist if he will, for there is no Act of Parliament to prevent him, whereas there is one which will punish persons assuming the title of 'surgeon' without legal qualification, and without being registered under the Medical Act.

"The committee submit that, supposing the College of Dentists were to succeed in establishing the right to use the title 'surgeon-dentist,' they would then come under the provisions of the Medical Act as 'surgeons,' and, accordingly, could not recover fees (nor practice legally as surgeons) for any operation or work done, unless they could prove upon the trial that they were registered under the Medical Act, and dentists cannot, as such, be registered under the Medical Act.

"The committee regard it as extremely unfair that dentists should assume a title which has not been obtained by any surgical education or examination. The object of those, however, who assume that title improperly is apparent, viz., to have an honorable distinction with its concomitant advantages, and to enjoy privileges which they have not legally acquired.

"To sum up the views of the committee, they are as follows, viz.: 1st. The word '*dentist*' means 'an operator on the teeth.' 2d. 'Surgeon-dentist' implies that, in addition to the occupation of '*dentist*,' the party has the statutory qualification of 'surgeon.' 3d. It is penal to use the prefix 'surgeon,' unless in possession of the legal qualification conferring such title.

"I have the honor to be, gentlemen, yours very obediently,

"THEOD. ED. LADD, M.D., Hon. Sec."

PERISCOPE OF MEDICAL AND GENERAL SCIENCE IN THEIR RELATIONS TO DENTISTRY.

BY GEO. J. ZIEGLER, M.D.

Cell Life.—Inorganic bodies are made up of minute particles or atoms, each one of which is separate and distinct, and yet united with others in general aggregation to form the mass. Organized bodies are in like manner composed of primary atoms or molecules, which differ, however, from the former, both in their general constitution and in being

endowed with vitality. Living bodies are thus composed of diminutive cells or molecules, each one of which is an independent organism, yet variously associated to build up and form the different tissues, organs, and apparatuses of the economy as well as the general organism itself. This aggregated organism or individual being continues the living chain by being combined with others to form orders and classes; or, as in the *genus homo*, families, communities, nations, and, collectively, the race, the body politic, the concrete man, the universal organism and aggregate being. The individual molecules of the living economy, like the independent members of the body politic, are generated or born, are endowed with special peculiarities, undergo certain developmental transformations, perform definite functions, and ultimately decay and die. They are, in like manner, subject to disease and premature disorganization as well as to the final death in the natural order of things. This disease and death of the molecules aggregately, constituting and often preceding those of the body itself, while, in many instances, molecular derangement and dissolution is but a consequence of the somatic or general death. The analogy is still further exhibited in the fact that molecular disease and death are often confined to very narrow limits, as, for instance, in the affection or destruction of one or more of a special variety in a particular part or organ, in the same way as one individual being may become diseased and die, without materially influencing another, though from the intimate relationship between one organism and another, and the universal connection of all living beings, more or less disturbance, or even complete destruction of life, may and often does ensue. The analogy may be still further extended to show that there are special as well as general derangements of the different organisms. Thus, limited disturbances constitute local affections in both the individual and the aggregate or universal body, as well as in the primary molecules, and special as well as general dissolution may take place in all.

These analogies and remarks might be greatly extended, but as they were merely designed as a sort of introductory to the following, from a lecture by Dr. Wm. Addison, (*British Medical Journal*, and *Medical News*,) the above will suffice to give a general view of the subject, while the latter will afford a special outline of it in its relations to that peculiar fluid the blood, which, though apparently homogeneous in composition, is in reality of the most heterogeneous character.

“The corpuscles of the blood are independent organisms, swimming in the plasma, deriving from it and from the air materials suitable to their growth and functions, and discharging into it and in the air the matter of their excretions, namely, carbon or carbonic acid into the air, and a nitrogenous compound or urea into the plasma. Depurating organs, located at various points of the circulation, withdraw from the plasma the matters which, if retained in it, would injure its qualities or composition; and the elements of the different depurating organs have different or special

affinity for different substances in the plasma. We have dwelt specially on the change which the corpuscles experience in their color by exposure to the air in the lungs, and upon the poisonous quality they acquire if the normal change is not effected; and we have shown that these bodies, if they take or select from the plasma and from the air materials suitable for their maintenance, must have, in common with other cellular bodies, a property of indifference, or resistance to some extent, against deleterious substances.

"As respects the plasma, or fluid of the blood, we have noticed the close relation between it and articles of food or drink through the chyle. Substances received into the stomach in diet, and poisonous substances taken in the same way, may be speedily detected in the secretions; therefore the plasma must be a fluid of variable composition, and its relatively inferior position to the corpuscles was argued from these facts, and from the treatment of cases of cholera in 1832, by large quantities of a saline injection thrown into the blood.

"The conclusions to which we have arrived are—

"That changes in the qualities of blood from errors in diet, or from poisonous substances taken through the stomach, commence in and may be limited to the plasma; whereas changes in the qualities of blood, from poisonous substances dissolved in the air and inhaled by the lungs, may commence in the corpuscles. In the latter case both parts of the blood become disordered, not simultaneously, but in succession: the corpuscles first, and then the plasma.

"These conclusions are not strained to support any favorite theory. The great physical difference between the fluid and the corpuscles of blood; the absolute manner in which the fluid depends upon diet, food, and drink; the contact of the corpuscles with the atmosphere in respiration; the change in their color and properties which ensues; the matter poisonous to the brain which arises within venous corpuscles; the action of the depurating organs upon the plasma exhibiting special affinities,—all these are received doctrines of physiology, or flow logically from them, and we make them the basis of a therapeutical doctrine in blood diseases, distinguishing between the fluid and the corpuscles."

Empirical and Scientific Art.—Suits for malpractice in dentistry are beginning to multiply. A case is given in the *London Lancet* for October, in which the operator, standing behind the patient, made six or seven ineffectual efforts to extract a right superior tooth, during which he fractured the jaw so seriously as to oblige the patient to live on soft food, and render him unable to work for about one month. The case was treated by another dentist soon after its occurrence, by cutting away the gum and taking out two teeth—one decayed and the other sound—and part of the jaw. Another suit was recently prosecuted in Maine for extracting the wrong tooth, but terminated in favor of the operator. The defence was that the patient fainted, and thereby caused the instrument to slip upon the wrong tooth. In all cases in which sound teeth are extracted, whether by accident or to relieve pain, they should be immediately replaced, and measures taken to insure their reunion, as it is now well established that

such teeth will reunite with the tissues of the body and become as useful as before. In view of this fact, it is a question whether it would not be better, in some instances, to only partially extract aching teeth as well as to reinsert those wholly extracted, when not too much decayed to promise to be useful, as the mere separation of the nerve tissue is usually sufficient to correct the evils for which this operation is resorted to. In fact, from the strong testimony upon the subject, it is not improbable that teeth may often be extracted, filled, and replaced with success, although this is not to be recommended unless in exceptional cases. The striking case recorded in the last number of this Journal goes far to sustain such a hypothesis, if it be one, for if our memory serves us right, this feat has already been accomplished.

The question of the reunion of organic tissues, after complete separation, is one of great importance, in view of its practical applications in conservative surgery, both general and special. It is well known that such reunion will take place in both plants and animals. Advantage is being constantly taken of it in the vegetable world in the process of grafting. The operation of the conservative law for the regeneration and reparation of the different parts of the living organism is also frequently exhibited in the lower animals. The reparative power, though not so active as in plants and the lower animals, is not, however, deficient in man, for numerous, and in some instances extraordinary, cases are presented in which reunion of important parts have taken place even after complete separation. Interesting and striking examples might be adduced in confirmation of this statement, but the following, of recent date, which seem to be perfectly reliable, will suffice. The May number of the *Belmont Medical Journal* quotes a case from the *American Medical Gazette*, reported by Dr. E. S. Cooper, of California, in which a foreman of a steam saw-mill had the end of his right thumb sawed completely off, which afterwards united and became almost as useful as ever. The doctor says that when he saw the man, "some twenty or twenty-five minutes afterwards, the separated fragment was blue and cold as the cadaver," and besides, "shockingly lacerated." Notwithstanding this unfavorable condition he was induced, from the astonishing facility with which wounds heal in California, to make the attempt to induce reunion, and accordingly attached the separated part to its original place by means of three silver sutures. He adds: "The detached portion grew fast, and bids fair to become as useful as ever; the joint which was sawed through has a freedom of motion almost equal to that of the opposite thumb." The editor of the *Belmont Journal* adds a case, which came under his own care, in confirmation of the conservative power of the human organism in reuniting parts which have been separated. He says that "a boy, ten years of age, had his foot caught in a tramp-wheel and separated from the leg at the ankle, apparently about four-fifths across; all the connection remaining was a small strip

of muscle and skin, by which the foot dangled." On being brought and kept in opposition with stitches, adhesive plaster, and bandages, the part rapidly reunited. There was no deformity or stiffness of the joint, and the cure was so complete as to leave scarcely any evidence of any accident ever having occurred to the part. The practical operation of this principle of reparation is also exhibited in the processes of the transplantation of the soft tissue in plastic operations, and for the adventitious production of bone, as well as in the transplantation of the teeth themselves, and, as before intimated, the reinsertion and successful reunion of those organs with the maxillary tissues.

It is shown by E. Brown-Séquard that actual death, in a part or tissue, does not take place for some time after separation from the body. This is, doubtless, in consequence of the continuation of the molecular or cell life, for it is well known that this may remain in operation for some time after death of the general body, somatic frequently preceding molecular death. The tenacity and activity of molecular or cell life is well seen in the lower forms of life. Recent experiments have shown, for instance, that cicatrization and development will take place in the tail of a tadpole after separation from the body. Many other illustrations might be presented if time and space permitted, but our remarks have already been unduly extended. In view, then, of these facts and their practical importance to humanity, it becomes the duty of the dental as well as general surgeon to study more thoroughly the principles involved in these reparative processes of life, and further extend the area of conservative surgery by their practical application to the preservation of the integrity of that wonderful piece of mechanism—the human body.

The Decline and Evils of Homœopathy.—Scientific physicians have always maintained that the dogma "similia similibus curantur," and the doctrines of Hahnemann, were neither founded upon fact nor in accordance with philosophy, but, on the contrary, were in direct antagonism to both truth and common sense; and experience has amply demonstrated the correctness of these premises. Reason and observation have thus shown that homœopathy is not only false in theory, but, moreover, negative in practice, and, indirectly, positively injurious. The progress of knowledge has made these facts so apparent as to force many of its former supporters to discard it altogether, and to oblige those less reasonable to confine its applicability to very narrow limits, and compel those less honest to a surreptitious resort to scientific medicine in order to maintain its failing status.

The practical inefficiency and injurious tendencies of homœopathy in its various phases, have now, however, become so palpable as to compel its strongest adherents to notice them. Thus, in the August number of the *American Homœopathic Review*, the leading homœopath of Philadelphia,

and one of the most noted of the sect in this country, Dr. Constantine Herring, voluntarily acknowledges to the "rapid going down which has become apparent of late years," and, moreover, confesses to the evils entailed upon humanity by its adherents, and this, too, notwithstanding their reputed increase in numbers and the expansion of their so-called *materia medica*. With regard to the results of their treatment, he says: "We take as granted and admitted by the majority of the leading men, as a uniform observation made in Germany, as well as in France and in England, and here long ago, that in general the success of homœopaths in our days is inferior to that of the earlier homœopathic practitioners." He also states that "the introduction of Drs. Drysdale and Atkin" to the *British Homœopathic Repertory* "contains the remarkable concession: *our success is inferior to that of the earlier homœopathic practitioners; it must be admitted, that our practical gain has not been equal to the extension of the materia medica,*" and adds, in commendation of this confession, that "such a candid, upright, and noble acknowledgment deserves the greatest praise." In relation to the evil effects of homœopathy, he says: "We all know that the numbers in our homœopathic ranks are not lessening, but it is the general observation, that the number is, year after year, increasing, who, instead of deriving benefit from homœopathy, are made incurable by so-called homœopathic practitioners."

"Caries of the Teeth caused by External Agents.—Experiments of this character lead to the conclusion that within the mouth agents are present which, under favoring circumstances, are capable of decomposing the dental tissues, and the source of these agents becomes the next question which naturally suggests itself. The secretion from the mucous membrane is ordinarily slightly acid, while the salivary fluid, when normal, is alkaline. The result of the admixture of these, if equally proportioned, would be a neutral fluid. In certain conditions of health even the saliva may be acid, and the mucus would then retain its original character after the mixture of the two fluids. Again, the degree of acidity of the mucus may be increased beyond the normal amount, and its tenacity may enable it to remain in certain situations unmixed, and consequently uninfluenced by the alkaline character of the salivary fluid. The quantity of the mucus may be excessive either from a local or a general cause. We not uncommonly find in mouths tenanted by numerous carious teeth, the gums thickened and vascular, and covered with a coating of thick adhesive mucus capable of being drawn from the gum in long strings. A case is fresh in my memory in which the teeth were rapidly destroyed by caries, and, coincident with the destructive process, the salivary fluid was scanty in amount. The mouth owed its moisture to the secretion of the mucous membrane. The patient complained of great discomfort from the dry and clammy condition of the mouth and throat. The teeth that were first lost decayed in those situations in which we usually expect caries to show itself; but at a later period the whole of the remaining teeth were almost simultaneously attacked near the edge of the gum, producing

round each tooth an angular belt of softened tissue. The patient suffered from long-standing dyspeptic symptoms; and among these, a vitiated condition of mucus, secreted from the surface of the mouth, and a diminished amount of saliva, formed prominent features. In the foregoing case there could be no doubt that the state of the oral fluids was dependent upon the general condition of the body; but in many cases it is by no means easy to determine how far the disorder of the teeth is dependent upon a general derangement of the system having a coincident existence, or how far the general disturbance of health may be dependent upon the diseased condition of the teeth. Young people are often brought to us in whom, coincident with the extensive development of caries, we find an abundant flow of saliva, and a free secretion of mucus; but I think the latter is usually in excess, and is found clinging to the teeth, instead of becoming dissolved in the saliva. In cases like those just cited, I believe we must regard the mucus as furnishing the agent by which the dental tissues are decomposed; and this opinion has been strengthened by the results which followed upon treating several teeth in a manner calculated to test the capability of the mucous membrane to furnish an agent destructive to the teeth."

"A disordered state, local or general, of the mucous membrane, must not, however, be regarded as the only source from whence may be produced agents capable of decomposing faulty enamel or dentine. For instance, examples present themselves in which the teeth rapidly decay in mouths free from any increased vascularity, local or general—free from adherent mucus about the teeth, and also from any sign of that fluid being either excessive in quantity or vitiated in quality. If in such cases the oral fluid be carefully examined, I believe it will be found that the saliva itself has at intervals lost its alkaline character and become acid. Several patients (females) returning after a prolonged residence in India, have presented the foregoing conditions of the mouth. They have been pale, bloodless, and greatly debilitated, though not necessarily greatly attenuated subjects"—*Tomes' System of Dental Surgery*.—(*Am. Druggists' Circular*.)

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"*Submucous Injection as a Cure for the Toothache of Pregnancy.* By HORATIO R. STORER, M.D.—In a paper read before the Society for Medical Observation, in February last, it was suggested that in certain obstetric cases, otherwise incurable, permanent relief might be had by a modification of the simple and easy process of Alexander Wood. As the remarks referred to were but incidentally made, in connection with a case illustrative of criminal abortion, and as the proposal itself seems to have been new to the profession, it may be worth repeating in more distinct form, and at greater length.

"'Pains in the teeth,' says Montgomery, 'are with some the invariable accompaniment of pregnancy.' 'Their effects upon the comfort and well-being of the patient are often very distressing.' 'After all our endeavors, we shall find ourselves in many instances unsuccessful,' 'and if not relieved, abortion may result.'

"Not to enumerate the long list of remedies that have hitherto been advised for the malady, it is only necessary to state that in certain obstinate cases they are all found unavailing, and that general practice and many writers have been in favor of proceeding to the extraction of a

tooth; if which fail, some have been rash enough to counsel the deliberate induction of abortion. These acts, however, must be pronounced unjustifiable, both on moral and legal grounds, which I have elsewhere adverted to.

"The toothache of pregnancy, as such, is not dependent upon caries, and if for scientific reasons alone, it should not be submitted to the usual treatment. Decay may undoubtedly exist, and in pregnancy caries of the teeth often does progress much more rapidly than at other times; but the affection we are now considering being purely sympathetic and reflex in its nature, depending directly upon the uterine irritation, can seldom be relieved by the extraction of a tooth, whether this be sound or impaired.

"Burns, Blundell and others acknowledge that extraction of a tooth during pregnancy may be immediately followed by abortion—a consequence that might readily be expected from so profound an impression upon a nerve just then in unnatural and excessive sympathy with the uterus; in much the same manner as abortion sometimes occurs in consequence of intentional excitation of the mammæ, whose system of nerves is now allowed to be in intimate connection with the uterine. Be this as it may, however, from the fact of the occurrence and its risk—that abortion may ensue and frequently has ensued directly in consequence of the extraction of a tooth during pregnancy—we are compelled to assert that this very unscientific operation should always be avoided. To the argument that the pain, if unrelieved, might of itself occasion miscarriage, we should answer, even if we had no alternative to propose, that at times this neuralgic pain has suddenly and spontaneously ceased without interference, and that at others, however severely abortion may have threatened, it yet has not occurred.

"But if the extraction of a tooth is to be reprehended in such cases, much more is the intentional extraction of the fœtus. The growth and moral tone of society, and the best interests of the profession, have already suffered too much at the hands of rash and meddlesome practitioners, who have thus abetted, however unintentionally, the spread of criminal abortion. We are plain in our statement, but unhesitating, for we believe that in much of the treatment of the nervous complications of pregnancy, whether evidenced by vomiting, convulsions, mania or simply toothache, there is oftentimes on the part of the attendant a carelessness resulting in direct intra-uterine murder—and that by the influence of such example upon the moral sense of the community, the frequency of the intentional crime is increased. The remark we have now made applies with equal force to much also of the usual treatment of difficult childbirth—to recklessness, by what authorities and however defended, in the use of the crotchet, the plug, and of ergot.

"In considering the real character and cause of the toothache of pregnancy, it occurred to my mind that the operation which has of late been found so effectual in removing neuralgic pains from other portions of the body, would probably prove equally valuable when applied to the gums, and in practice I have found it perfectly successful for this purpose.

"CASE.—A. Z., aged 22, applied to me for treatment early in May last. Patient had suffered for several weeks from severe neuralgic pain throughout the left half of the upper jaw, at times lancinating in its character, at others more dull, but never wholly absent. The general health was decidedly affected, as evidenced by the state of the circulatory, digestive, and nervous systems. The teeth, on inspection, were all sound; there

was no heat or swelling of the gums, no tenderness or increase of pain on pressing them.

"Anodynes, both local and general, refrigerants, emollient poultices and counter-irritants were successively resorted to, without benefit. After much solicitation a tooth was extracted; the patient remained unrelieved. On the following day, no change for the better having occurred, ten drops of the Edinburgh solution of the bi-meconate of morphia were injected beneath the mucous membrane of the gum; the pain ceased instantaneously, and from that moment to the present, a period of nearly five months, there has been no return of the malady. * * * * *

"I am not aware that any writer has hitherto proposed to prevent, by submucous injection, the extraction of teeth during pregnancy—and thereby to prevent abortion, resulting either from that operation or from the neuralgic pain; not even does the induction of mere local anæsthesia, by any of the numberless modes attempted, seem to have been thought of for this special purpose. Nor do I know that submucous injection had ever been made use of, previously to the case I have related, for the cure of dental neuralgia. It was the opinion of a friend, Dr. Page, at the meeting of the Society to which the subject was originally presented, that upon this point I was in error; but the gentleman has subsequently informed me that the application in the cases to which he alluded, in the practice of a distinguished dentist, was of anodynes externally, to the surface of the gum. Apparently the only instances as yet recorded of the injection of opiates into the substance of the gum, are by a dentist of Edinburgh, Mr. Smith; and the operation with him was for the purpose of producing temporary local anæsthesia during the extraction of teeth, not for the purpose of preventing their extraction by the cure of neuralgia.

"By the copying of a large portion of my former paper into a leading journal of American dentistry,* an unexpected opportunity has been given of impressing upon dentists the heavy responsibilities, hitherto generally unacknowledged by them, that attach to the extraction of teeth from pregnant women; and I cannot but hope that the views expressed may thus be made productive of decided and extensive good."—*Boston Med. and Surg. Jour.*, October 6.

"*Subcutaneous Injections of Medicines.*—The injection of the salts of morphia, and other medicines, into the cellular tissue, in cases of neuralgia, seems to be all the rage at the present day; and from the enthusiasm with which this method is spoken of, both in the profession, and especially among the laity, there is danger that a reaction may occur, which will for a time cast into the shade a really valuable means of controlling this painful disease. There can be no question of its success in cases where all the ordinary internal treatment has been perseveringly and judiciously tried, but it not unfrequently fails, partly from being employed in cases for which it is not suitable, but sometimes without known cause. We are glad to see that the subject of subcutaneous injections of medicines in general, and especially of quinine in intermittent fever, will make the subject of a report before the American Medical Association, at the next annual meeting, in June, in 1860, by DR. IGNATIUS LANGER, of Davenport, Scott Co., Iowa, who invites the co-operation of the profession in the pre-

* Dental Cosmos, August, 1859, p. 53.

paration of his paper. We can assure our readers that Dr. Langer is capable of doing justice to this important subject, and we hope that all who have had any experience with this mode of treatment will communicate the results to him."—*Ibid*, October 13.

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"On Buccal Cancer among Smokers.—M. BOUISSON, of Montpellier, has given to the world another blast against tobacco, in deducing the increased prevalence of labial cancer from its excessive and long-continued use. He relates sixty-eight cases affected with canceroid and cancerous tumors in persons addicted to smoking, and thence traces a complete pathological history of the disease. We will give a brief résumé of the arguments he employs to prove his etiological doctrine, remarking, however, that they apply rather to a canceroid disease than to cancer properly so called.

"There is no doubt, says M. Bouisson, that cancer of the lip and other parts of the mouth has become more frequent in proportion to the increased number of smokers, and to the increased amount of smoking among those who had already contracted the habit; the disease has progressed with the habit. This lesion was quite rare in the last century. If we examine the works of the surgeons of that time, and even those of the beginning of the present century, we find that cancer of the lip is not noted as having any marked predominance over cancer of any other part of the body, and none of them seem to have suspected that tobacco could play any part in determining the disease. All the works devoted to this disease, whether by French writers or those of other nations, are silent on this point of etiology. Hence we are justified in inferring, that if such men as Boyer, Delpech, Bell, Richerand, Heister, Jourdain, etc., did not notice the frequency of labial cancer in the proportion in which we find it at present, it was because the occasional cause of the disease was less common than now, and the number of smokers being fewer, the number of diseases which this custom engendered was also less considerable. But now the increase in the number of smokers, *à outrance*—men who are never without a cigar or pipe in their mouths—for whom even sleep does not remove the offending weed; this increase, he remarks, has also multiplied, in a remarkable degree, the number of cancerous diseases of the mouth requiring surgical operations. Never before was there so much talk, in hospitals and in private practice, of cauterization, of excision of the lip, and of cheiloplasty. M. Bouisson is of opinion, besides, that something more than the mere habit of smoking is required to produce labial cancers, and accords a good deal of influence to a general diathesis; but he believes that he has good reason to maintain that this morbid disposition would remain latent but for the local exciting cause produced by the irritative action of the tobacco incessantly concentrated on one point. Besides the argument deduced from the increased frequency of labial epithelioma, the author brings the following reasons to his aid, viz.: it attacks the lower lip most frequently, on which the pipe stem or cigar habitually rests; it is rare among women and children. M. Bouisson speaks of a woman who was affected, but she was an inveterate smoker, and the older the smoker the more common the disease, most of the cases being in men over forty years of age. Among the poorer classes, who smoke short pipes and bad tobacco, the disease is developed sooner than among the rich, who smoke delicate cigars and long pipes, and who neutralize the local effects of the combustion of the tobacco by hygienic

means. The local action of the heat on the lips has probably some effect in the production of the disease, but tobacco alone would suffice. M. Bouisson gives the case of a physician of Barcelona from whom he removed some epithelial vegetations in the nostrils, which he had no hesitation in ascribing to the practice, so common among the Spaniards, of eliminating the smoke of their cigarettes through the nose, and it is thus, probably, that in many cases epithelial cancers of the tongue, cheeks, arch of the palate, gums, and tonsils are produced.

"As M. Bouisson's work seems thus to be founded on serious and important considerations, smokers should take warning, and indulge but moderately in their luxury."—*Medical and Surgical Reporter*.

"India-rubber Tools.—MR. THOMAS J. MAYALL, of Roxbury, Mass., who has long been engaged in the enterprise, has succeeded in producing a composition, the basis of which is india-rubber combined with emery, from which are manufactured files, emery-wheels, grind-stones, hones, razor-strops, scythe-rifles, knife-sharpeners, and a variety of other articles of like nature. The files wrought from this new composition can be molded into any desirable size or form, and adapted to every variety of mechanical business in which the common rasp and file are employed. They can be made as rigid as the steel file, or as flexible and elastic as the original gum which forms the basis of the invention. Emery-wheels and grind-stones are wrought from this composition of every desired shape and size, from the coarsest grade of emery to the finest buff-wheel. In point of economy, the new composition is superior to any of the implements which it is destined to supersede, since the articles made from it are serviceable until the material of which they are composed is entirely worn away. It possesses the virtue of repelling oils and solvents. * * *

"This composition has been perfected by a new process and principle discovered by Mr. Mayall, and we learn that the rights of the discoverer have been duly secured in the United States, and in all of the nations of Europe.—*Boston Journal*.—(*Practical Machinist*.)

"Morbid Influence of the Nervous System.—E. B. Séquard relates, in his journal, several interesting cases which illustrate the fact that the nervous system is capable of producing various alterations in the nutrition of different organs. These cases are used by Dr. Séquard to establish the distinction between two series of facts, which are daily confounded together by many physicians and physiologists. In consequence of this confusion, they erroneously maintain that the actions of different tissues and organs, as well as their nutrition, are dependent upon the nervous system. The comparison of the effects of compression of a nerve with the effects of its section shows that there is a great difference in the two cases. Section of nerves is followed simply by atrophy of the paralyzed parts. Compression of nerves, *i.e.* irritation of nerves, causes ulceration of parts supplied by them, as has been shown by surgeons. Mr. Paget relates the case of a man in whom the lower end of the radius was fractured, and a large quantity of bony matter thrown out, so as to compress the median nerve; the consequence of this pressure was ulceration of the thumb, the first and middle finger. The ulceration was cured by bending the wrist so as to remove the pressure; but it returned when the man was allowed to use his hand. This, says M. Séquard, was a case of irritation of the

nerve, and the proper cure of it is section of the irritated nerve. The same remarks hold good in regard to the spinal marrow. Ulcerations of distant parts often follow rapidly upon injuries of the spine in some cases; but in others, the ulcerations come on at a long period after the injury. In the former case, the spinal marrow is compressed and irritated, in the latter case it is not. 'Consequently, it is not the paralysis, or the absence of action of the nervous system, which causes the alteration of nutrition, but it is, on the contrary, a morbid action of the nervous system, the result of irritation, which occasions this alteration. We must, therefore, as physicians and physiologists, carefully distinguish the effects of morbid action from those of absence of action.'—*Nashville Medical Record*.

"Sympathy of the Nerves.—When the nerves, from long habit, have become accustomed to transmit their messages from distinct parts, and are suddenly cut off from them, they will still retain along their trunks the sympathetic or sensational actions. Thus, a man who has had a leg amputated will feel distinctly along the course of the trunk of the nerve sensation from toes which no longer exist. The mind also is influenced by this; and frequently this peculiar direct nervous action can only be allayed by that which is negative and reflex. A curious instance occurred within my own experience. An old sailor suffered much from this. He retained his diseased foot too long, but at last consented to an amputation. I knew him with only a wooden leg. When he had his nervous pains he always called for hot water, into which he put his wooden stump. If told of his folly in supposing that such a proceeding could do any good, he would become enraged, and his paroxysm of pain would increase; but if gratified, he took things easy, and the process actually appeared to do him good, though all must know there could be no real benefit. Still, here is the effect of mind over matter."—*New York Medical Press*.

"Enormous Ranula.—At the Cancer Hospital, lately, under Mr. Weeden Cooke's care, was an eccentric old woman who has had a ranula for some years, which had grown to the size of a large orange. When in the mouth it protruded one cheek in the most unsightly manner, and when allowed to hang out of the mouth it was like a transparent jelly-bag. She was in good health, and able to eat and talk with but slight inconvenience. Many surgeons have seen it, and wished to operate; but she steadily resisted all such interference. Not being allowed to snip out a portion of the membrane, Mr. Cooke proposed the application of potassa fusa, to make an aperture which would not close up readily; but this also she decidedly objected to.

"It is very seldom that a ranula is seen larger than a walnut or pigeon's egg, because when it attains that size under the tongue it pushes this organ upward and backward, and sometimes most seriously interferes with both speech and deglutition. If the cyst continues to increase in Mr. Cooke's patient, it may spontaneously rupture, and partial relief be thus brought about. Such a ranula as this cannot be said to be a dilatation of Wharton's duct."—*London Lancet*, October, 1859.

MISCELLANY.

MR. C. C. LYON, a dentist of Rhode Island, recommends, in the *Scientific American*, the introduction of semi-solid plaster of Paris, into a tooth cavity to arrest the excessive hæmorrhage sometimes following extraction. But for such purposes, instead of mixing the plaster with simple water, as is usual and here recommended, it will be better to combine it previously with a strong solution of some powerful styptic, such as matico, tannin, alum, or persulphate of iron. Other articles, as compressed sponge, gutta-percha, or india-rubber, in a plastic condition, and various other substances, are also useful for plugging such cavities. Usually, however, the tooth itself forms the best and most convenient plug. In all cases, the article designed to be thus employed should, before insertion, be fully charged with some active and prompt hæmostatic, such as tannin, alum, persulphate, or perchloride of iron, or any other most convenient. Sometimes, however, the hæmorrhagic diathesis is so predominant that local applications prove insufficient, when it will be necessary to resort, in addition, to general treatment.

MR. OVERTON reports, in the *Medical Times and Gazette*, a case in which, during puerperal convulsions, a woman swallowed a set of four front teeth on a silver plate. On the tenth day afterwards, having recovered in the mean time, and while sitting up in bed and talking cheerfully with her mother, she suddenly vomited a large quantity of blood, sunk back on her pillow, and expired. The death is attributed to the penetration of some large vessels by the teeth or plate, though it is not supported by any other than circumstantial evidence, as a post-mortem was not permitted.

Chlorate of potash and catechu has been successfully employed by Mr. Moore, for the removal of spontaneous ptyalism in a boy.

DR. H. ERNI states (*Nashville Medical Recorder*, from *Chemical Central Bl.*) that A. Vogel, Jr., and C. Reischaur, found tobacco smoke invariably to contain sulphide of hydrogen and prussic acid.

A case is recorded in the *London Lancet* (October) of a boy "with his lips and mouth drawn downward, from a burn in the neck when an infant," in which "by suitable appliances the head and chin were kept extended, with the effect of bringing back the lower lip and jaw to their natural position, and getting rid of the extreme deformity."

The same journal states that MR. BÈHEIR, of Paris, has been testing the hypodermic treatment by injecting a solution of sulphate of atropia, in the proportion of six grains to the ounce of water, or the fiftieth part of a grain to every five drops of the solution. "Fifty-three patients, affected with various kinds of neuralgia, were injected close to the seat of pain with this solution; twenty-two others with a solution of the sulphate of strychnia," of the same strength as the former. "Pain was always relieved, and cures effected in all cases where the injections were sufficiently repeated—namely, in thirty-one cases out of fifty-three. Signs of belladonna poisoning occurred in all, which was combated by opium." M. BÈHEIR's experience is unfavorable to the introduction of remedies at a

distance from the seat of pain, although he thinks that subcutaneous medication affords very great advantages in neuralgia and paralysis.

A writer in the same, in an article on "life and literature," observes : "On the whole, the pursuit of literature is favorable to longevity, giving an average of 68 as the mean term of existence ; but it is detrimental to life if commenced in youth ; and this latter accords with the *a priori* teachings of physiology. Youth is the period of active physical development, and sedentary employments cannot be closely followed at that time without injury to health and ultimate shortening of life."

DR. D. HAYES AGNEW gives (*Medical and Surgical Reporter*, October 1) an interesting case in illustration of the power of the emotions over the salivary secretion, a power which has been frequently taken advantage of to detect criminals. The experiment was made by a medical friend at a watering place, to detect the person guilty of purloining valuable property. As one of the servants was suspected, they were all collected, and informed that the test was infallible, and would certainly expose the guilty party. Each one was ordered to take a quantity of rice into the mouth, and to chew and swallow it, which they all, with one exception, successfully accomplished. This one, after many ineffectual efforts and wry contortions, was obliged to acknowledge his inability and to confess the theft. The consciousness of guilt and fear of detection had so completely suspended the salivary secretion, as to render it impossible to perform the functions of insalivation and deglutition, and the rice was ejected from the mouth perfectly dry.

In the same paper DR. AGNEW observes, that he is "disposed to believe, from observation, that the parotid, as well as the other salivary glands, are larger in tobacco chewers than in those not given to such a habit, which is not extraordinary when the constant excitation to which they are thus subjected is considered, inducing thereby an actual hypertrophy."

DR. J. SYD. BAILY reports, in the *Belmont Medical Journal*, August, several very interesting cases of neuralgia faciei, his own among the number, treated successfully by the external application of veratria. He says : "My experience with this drug leads me to consider it an excellent remedy in that form of neuralgia attendant upon carious teeth, and often following extraction or attempted extraction, where the pain does not constitute true odontalgia, but extends forward along the inferior maxilla, and upward into the temporal regions, following the course of the facial nerve and its branches, which are the implicated structures." He also states that it is sometimes necessary to combine it with an internal remedy, as morphia, and where there is a tendency to periodicity, the sulphate of quinia. His mode of application is to mix from three to eight grains of the veratria with a drachm of lard or simple ointment, and rub a small portion of it thoroughly along the course of the implicated nerves, repeating the operation, if, in the course of fifteen minutes, the peculiar tingling, burning sensation is not produced.

DR. J. TAYLOR BRADFORD, in discussing the subject of ovariectomy, in a report published in the *Semi-Monthly Medical News* for September, observes, that he "is aware that ovarian tumors, besides the aqueous, semi-gelatinous, meliceritous, and atheromatous matter, contain in many instances hair, teeth, fleshy substances, and bones." He further says that

"ovarian pathology mocks at all the learning of the schools; who can account for a *dens sapientia* in the ovarium? Yet DR. ARCHER, of Maryland, found a tooth of that character in the ovarium of a patient of his. A great many other cases are recorded in various works on good authority, not only of hair, bones, and teeth being found in the ovaria, but, in some instances, of teeth set in an alveolar process, and in one case of bones in the ovarium of a child ten years old."

The *American Medical Monthly* for October states that in the *Chicago Medical Journal* for August, PROF. D. BRAINARD figures and describes a blunt scissors, invented by himself, for the removal of vascular tumors, where the knife would cause too much bleeding, and the écraseur could not be applied. It is adapted for removal of tumors from the throat. It also states that in the same number of the same journal Prof. Brainard figures a pair of forceps for compressing the facial artery and preventing hæmorrhage during operations upon the lips.

DR. J. A. EASTON regards neuralgia as but a local manifestation of the gouty diathesis, and presents his reasons for the opinion in an interesting paper, of which the following, taken from *Braithwaite's Retrospect*, is an abstract: "Neuralgia is gout attacking the covering of a nerve, a gout attacks the covering of joints, etc. In one person gout thus attacks a nerve, in another the joints, in a third the aponeurosis of muscles. In neuralgia, from deficiency of oxydation, uric acid may remain unchanged, or, by more oxydation, may become oxalic acid, but stops before being changed into the last products of oxydation—carbonic acid and urea. The treatment, therefore, with respect to medicine, is to supply the increased quantity of oxygen necessary for changing the oxalic to carbonic acid; this can be done in some measure by nitromuriatic acid, but the most effectual method is air and exercise, with proper food." A very efficient and speedy method for restoring the chemical equilibrium of the economy is to resort directly to the element oxygen, or its congener, nitrous oxide, either in the form of gas or aqueous solution.

Titanium has recently been found in large quantities at the furnaces of the Hematite Iron Company, of Whitehaven. One mass, weighing nearly four cwts., was discovered. Smaller masses, weighing from fifty or sixty pounds to a few ounces, were also found. It is said to be so abundant about these furnaces (*Franklin Institute*, and *London Mining Journal*) that it can be supplied in considerable quantities.

Among the articles of interest noticed by DR. TURNBULL, (*Medical and Surgical Reporter*,) in a recent visit to the museum of L'Ecole de Médecine, Paris, was an elaborate preparation of the bones of the head and teeth of the carnivora, by the distinguished surgeon M. Chassaignac; also, a remarkably fine specimen of injected capillaries of the face, marked from Baron Larrey.

DR. L. MACK, in his "Monthly Review of Parisian Medicine and Surgery," (*New York Monthly Rev. and Buffalo Jour.*,) states that "M. Ollier has ascertained that the dura mater, in young animals especially, has the property of secreting bone. Flaps of dura mater, ingrafted in the axilla and groins of animals, gave rise to small and well-formed bones, with all the anatomical characters of normal osseous substance." M. Chassaignac, however, contends that he discovered this fact some time since.

In a report of the New York Pathological Society, in the same journal, by DR. E. L. JONES, it is stated that DR. CLARK presented a tumor taken from the cerebellum of a woman who died while ether was being administered for the relief of intense headache, accompanied with nausea, vomiting, and vertigo. She had taken it twice before, to the extent of several ounces, and had been kept under its influence for several hours without any apparent unpleasant effects. Dr. Clark observed that this case brought up the question whether the ether was the immediate or only cause of death, or whether it was exclusively dependent upon the presence of the tumor, the administration of the ether being no more than a coincidence, or whether, as is most probable, the two combined produced the fatal results.

At a meeting of the Buffalo Medical Association, the proceedings of which appear in the same publication, DR. HAMILTON expressed the opinion that a person could not be anæsthetized by chloroform during sleep, and adduced an experiment in support of this opinion. DR. CRONYN coincided with him, and related a case in confirmation. The correctness of this view was, however, doubted by others; while all acknowledged the necessity of further observation to positively settle the question.

DR. J. Q. HAMILTON records, in the October number of the *Cincinnati Lancet and Observer*, a case of acute stomatitis materni, with fever, which was speedily resolved by iodide of potassium and sulphate of quinia, after catharsis, with rhubarb and magnesia.

DR. J. P. BATCHELDER, of New York, recommends (*North American Medico-Chirurgical Review* and *New York Journal of Medicine*) compressed sponge as a very useful article in the form of a tent for the dilatation and curative stimulation of sinuses. He says it is also well adapted for the curative treatment of fistulous passages connected with diseased bone, and thus often obviates the necessity for instrumental interference; and, when such is unavoidable it acts very efficiently in dilating the sinus and exposing the part affected. He further presents it as a good mechanical styptic to make pressure upon a bleeding surface in cases where a ligature cannot be applied and compression is required.

The *Practical Machinist*, a new and promising weekly, published in New York, states that "if a current of electricity be passed through two metals in one direction, heat is produced; in the opposite direction, cold is produced; at the junction of the two, when the current travels in the direction of the best conductor, cold is produced; when it travels in a contrary direction, heat is generated."

The *Scientific American* says that "T. F. COCKER, of Sheffield, England, has obtained a patent for tempering steel wire by immersing it, when taken from the annealing pot, in hot water, warm oil, or any liquid in a heated state. By the usual method of tempering steel wire, it is never dipped in a heated liquid after being annealed."

It also states that B. D. WEBSTER and J. HARSFALL, of Birmingham, have received a patent for treating steel wire by first heating it to redness, then suddenly cooling it in water to harden it, and finally plunging it into a bath of molten metal composed of 40 parts of lead, 12 of zinc, 26 of antimony, 21 of tin, and 1 of bismuth, where it is allowed to remain until

it acquires its temperature, when it should be withdrawn and sprinkled with cold water. By this process the tenacity of the metal is greatly increased.

M. CHASSAIGNAC has lately amputated, with the *écraseur*, the principal part of a cancerous tongue. MR. BROOKE has also removed with this instrument a part of the same organ similarly affected.

DR. W. G. BULLOCH extols, in the *Savannah Journal of Medicine*, Lonsdale's apparatus for the treatment of a fractured inferior maxillary, and gives a drawing of the same. He also speaks highly of, and exhibits a wood-cut of another apparatus made by DR. A. WILCOX, which is so constructed as to fit around the teeth or over the gum, somewhat like an ordinary plate, to which is attached curved extending arms, to pass out of the mouth over the lips, to be connected with an external submaxillary splint.

The *New York Medical Press* records a case of complete union in double fracture of the lower jaw, treated by DR. A. B. MOTT, who brought the parts on both sides of the symphysis menti into apposition by silver wire sutures.

DR. KERN states that when the bark of the lime-tree (*Tilia Europea*) is boiled for some time, it becomes soft and supple, and capable of being molded into any form, which it retains when cold. It thus becomes a cheap substitute for gutta-percha. If the above be true, it is probable that the bark of our lime-tree (*Tilia Americana*) possesses the same property, for its botanical characters are almost identical.—*Nashville Journal of Medicine and Surgery*.

Among other matters of interest mentioned by DR. C. J. CARNEY in an able report to the *American Pharmaceutical Association*, upon adulteration of food and medicines, was the fact that beeswax is adulterated with resin, Burgundy pitch, earthy matter, flowers of sulphur, starch, and amylaceous substances, tallow, stearic acid, yellow ocher, calcined bones, and sawdust.

The *Scientific American* says, in an answer to a correspondent, that "all steel tools are liable to become magnetized when they are rubbed on or passed across other steel surfaces. The only remedy we can suggest, is to use several of the same kind, and as soon as one becomes polarized, exchange it for another, the polarization of each being merely temporary."

BIBLIOGRAPHICAL.

The *Physician's Hand-book of Practice* for 1860. By WM. ELMER, M.D., and LOUIS ELSBERG, M.D.—We have received a copy of this excellent little work from J. B. LIPPINCOTT & Co., Philadelphia. It is a very well arranged and handsomely gotten up manual. It contains much useful information in a small space, and is well adapted to meet the daily wants of the practicing physician, and even to some extent, the dentist, in enabling him to preserve an accurate record of his professional duties, and in affording him useful hints on subjects connected therewith.

THE
DENTAL COSMOS.
NEW SERIES.

VOL. I.

PHILADELPHIA, DECEMBER, 1859.

No. 5.

ORIGINAL COMMUNICATIONS.

PRACTICAL HINTS.

BY J. D. WHITE.

WE remarked, in concluding our last article on the above subject, that plugging the root of a tooth was necessary to complete its preservation. We do not wish here to condemn other modes of practice; but the method we are invariably in the habit of pursuing we think is the only true and legitimate practice. Over twenty years we regard as sufficient to test a principle, besides, at the same time, having tried nearly every other method of practice suggested by other practitioners, and failed to obtain satisfactory results. We do not believe that the want of success lies with us, because we believe that the relation of things and the indications to be met require all that we are in the habit of doing. Pathological conditions, in other branches of the healing art, are always regarded as correct indications of a proper method of treatment. Several years ago we gave a list of sixty cases of plugging the roots of teeth after other dentists had treated them; these cases were either giving pain at the time they came to us, or the teeth were in an unsound condition, requiring a different kind of treatment than they had received, to render them comfortable or place them in a state of reasonable preservation. We supposed at that time that every intelligent dentist had already made up his mind on the subject, and we supposed in favor of destroying the exposed nerve and plugging the root, consequently we gave our cases as only to corroborate the experience of others; but we have learned since that but few regard the treatment as by any means conclusive, as every device evasive of such treatment has since been advanced by eminent practitioners. We have referred to our list, and find that the sixty cases referred

to occurred among forty-two patients and twenty dentists. We have the names of the patients and the dentists, and of course we regard the information as of some importance.

When the pulp of a tooth becomes dead, either by its own accord (not a very appropriate term) or by the application of any destroying agent, and only the cavity of decay is plugged, whether the dead pulp is removed or not, the tooth turns blue, as it is termed: this is due to the fact that the contents of the pulp cavity are absorbed by the dentinal tubuli; whether it be the decomposed pulp, or the secretions from the extremity of the root, or the gases accumulating in the nerve cavity or not, all have the effect of helping more rapidly to discolor and soften the dentine, than if such substances were shut off as much as possible by plugging the canal of the root and pulp cavity by an impermeable and indestructible substance, (gold;) as the dentinal tubuli commence on the walls of the pulp cavity and radiate in every direction toward the periphery of the crown of the tooth and the surface of the root, it becomes important that the mouths of these tubuli should be closed, if possible, by a gold filling; if any other substance is applied, such as wood or cotton, it does not prevent the fluids from traversing the cavity and producing the same result as if the cavity was empty, or without a plug of any kind. While it is true that on removing a plug a nerve cavity may be found to be dry, as far as the immediate presence of fluids is concerned, at the time of removing of a plug after it has been in for a long time, it does not follow that gases are not at all times present doing harm, and at intervals fluids have not accumulated according to the changes of the health of the root, and have been absorbed by the tooth. It is not unfrequently true that we are obliged to remove plugs from dead teeth to get rid of the immediate accumulation of pus, and when the discharge has ceased, we can plug the tooth, and it will remain comfortable for years. No matter how well the cavity of decay may be plugged, the tooth cannot, in the nature of things, be in a proper state of preservation, because it is necessary to cut away a considerable portion of the apparently sound part of the tooth at the terminus of the pulp cavity toward the cutting edge of the front teeth, to preserve the tooth from future or progressing decay.

It is not true that the pulp of a tooth does terminate in the pulp cavity, as if it were in the bottom of a cup, but it flattens and extends, at least in the front teeth, toward the cutting edges, until in some cases it reaches to the enamel, and especially in young teeth, so that it is necessary to follow it up to the cutting edges as far as possible, and then fill the space to prevent discoloration.

We have referred to this part of the subject before in an article on tooth edge. We will give a case which beautifully illustrates this. A young lady, aged twenty years, called to consult us about her front teeth, which had become quite blue ten years since. The teeth were very large,

and in health very white. They had been plugged by a late and distinguished dentist of our city, after having destroyed the nerves, but no attempt had been made to remove the dead nerves or plugging the nerve cavities. We removed the plugs to examine the cases, and with a view to restore the color as much as possible. Notwithstanding the plugs were sound, and having been placed in with the greatest possible care, the insides of the crowns of the teeth had become so much softened, as it may be called, that upon removing all the decay, there was nothing scarcely left but the enamel. After all the decay had been removed, the teeth presented a very white appearance. We filled the roots and the shells of the crowns which were left, and up to the writing of this article, they remain without any apparent change.

BRUSHING TEETH.

BY J. D. WHITE.

IN the last clause of our article on brushing teeth, in the last number of the DENTAL COSMOS, we advised the use of a cloth on the front parts of the teeth, where the friction of the brush and powder was too great; but in lieu of the cloth, which some patients cannot bear, the finger only may be used. In some cases, where the teeth do not collect tartar, *white soap* may be used with advantage. Some have asserted that soap prevents the accumulation of tartar. This, in our experience, is not true. Many of our patients commenced the use of soap, seeing it advised in the newspapers of the day, without consulting us, and their teeth became very much coated with tartar and mucous sediment. This is very easily understood, when we reflect that the soap lubricates the teeth and the brush, so that it glides over the teeth without the friction that is consequent upon the use of powders. On this account, where there is no disposition to gather tartar, and the teeth are sensitive, we advise the use of the soap, where the patient prefers it, in order to satisfy their want, without the injury that the brush and powder would produce. A case in point occurred to us about one year ago: A young lady, about twenty years old, applied to us, complaining very much of extreme pain in brushing her teeth. Her teeth were very free from tartar; the gums were thin, and somewhat receding from the necks of the teeth. We advised the use of the white soap of the shops, instead of the powders. After the use of the soap for a time, the sensitiveness of the gums and teeth subsided, and her mouth has been entirely comfortable; but with its use, some tartar and mucous sediment gathered about her teeth. But if, in such cases, it is of great value, it does not follow that it is useful in all cases. Such patients may use powder once or twice a week, if the tartar collects too

rapidly While the soap may be of use to some, it by no means suits all. When tartar collects rapidly, and the teeth are not sensitive, powder is indispensable, to remove the constantly accumulating sediment. Where soap is used, the gums are disposed to become spongy; but where there is an impoverished condition of the gums, this is not a disadvantage. The lubricating influence of the soap prevents the brush from taking hold of the gums and teeth, while the powders break up the mucus which covers the teeth, and cause the brush to take hold of the gums and teeth, and in some cases too sharply, and rouse up, too, an undue sensibility of the parts. It is not always true, as many suppose, that friction allays the sensibility of the gums and the teeth, when its use is persisted in. Friction, we know, excites a determination of blood to a part; and teeth which are brushed too much take on a highly sensitive character, and become uncomfortable and uneasy—a kind of itching sensation, as if they required rubbing or pressing to induce comfort. This sensation is due to a hyperæmic condition of the pulp; and the more the teeth are fretted, the more uncomfortable they become, until actual pain not unfrequently sets in. We will cite one case of a great many of the same class, which we could name: A lady, whose teeth are very good, and who brushed a great deal, called to consult us, a year since, complaining of a constant and heavy pain in her teeth, sometimes amounting to very active and severe pain. Her teeth were very white and pearly; the gums red, hard, and sensitive. The teeth presented a brilliant and polished appearance. We requested her to suspend the use of the brush, except on the lingual and palatine surfaces, and to use the quill tooth-pick between the teeth. About one year has elapsed, and the mouth and teeth have become perfectly comfortable. We drew these conclusions from the fact that for a long time we had noticed that where a single tooth or more commenced wearing down on their crowns, that they not unfrequently became very sensitive and uneasy, and in many cases painful to the slightest touch, from the undue friction to which they were exposed, and giving rise to neuralgic pain. Now, we supposed that undue friction on the sides of the teeth would produce the same results as undue friction on their crowns. Another case in illustration of the principle: A very nervous and sensitive lady had a small cavity on the anterior approximal surface of the first superior right molar. Her dentist filed the tooth away considerably, in order to make sufficient space to keep the parts clean when the cavity was finally filled; but the dentist had filed away the enamel around the cavity of decay to a much greater extent than was covered by the plug. The patient was instructed to rub the space with a cloth daily, to keep the parts clean and to prevent further decay. This was faithfully attended to; but in time the operation of rubbing became very painful. She applied to her dentist, and reported that the parts had become so painful that she could not pass the tape between the teeth with-

out great pain. The only consolation she received was, that she *must* rub the parts until they became insensible. This she persisted in for a long time, but with so much distress that, as she related it, the whole system became so involved that she could not sleep at night, and she could not touch the tooth with a brush on any part of it, or pass food on that side of the mouth. She applied to us for advice. We told her to suspend the use of the tape. She could not bear the part to be touched in the slightest manner without shrieking with pain, and the whole system becoming convulsed. We applied arsenious acid to the exposed bone around the plug, and stopped the use of the tape. The tooth has become comfortable, and as useful as any other tooth in her mouth. This patient informed us that if anything lodged between the teeth, in this space, as long as it was there the tooth would throb with pain, until it was removed, and then a dull pain would linger for a long time after. It seems to us that, in exciting the nerves of this tooth, an undue determination of blood to the pulp caused the beating, as in the *jumping* toothache, which corresponds to the beat of the heart; and the prolonged pain was due to the fullness of blood in the pulp compressing the nerves after the irritant was removed. It is true that the undue impressibility of the teeth will rouse up the action of the heart, and finally bring the whole system under its influence.

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[Translated for the DENTAL COSMOS.]

DENTAL ANOMALIES AND THEIR INFLUENCE UPON THE PRODUCTION OF DISEASES OF THE MAXILLARY BONES.

BY AM. FORGET, M.D., C.L.D., ETC.

Memoir crowned by the Academy of Sciences at its meeting of 14th March, 1859.

INTRODUCTORY.

THE bones of the face are subject to lesions of vitality and structure that are common to the other parts of the body; these belong to the maladies of the osseous system, and are under the same histological influences.

There are some lesions, however, that belong more especially to the maxillary bones, and differ from the others in their anatomic characteristics, and particularly in their origin—these are the subject of the following treatise.

This work is intended to show the anatomical and physiological causes that predispose the jaws to organic lesions, requiring the intervention

of art. To demonstrate, by pathological anatomy, the effect of anomalies in nutrition and in the position of the teeth upon the production of these lesions; to exhibit the primordial characters which may put the surgeon on the track of these anomalies, and enable him to prevent their pathological consequences; finally, if they already exist in a tumor, to open a way which, rendering the origin and nature of the tumor evident, will restrict the surgical operation to the diseased parts, and preserve the continuity of the bone, the total or partial ablation of which would not then be justified,—such was the aim that I proposed to myself; and the public reward bestowed upon my work by the Academy of Sciences encourages me to hope that I have succeeded.

PRELIMINARY.

THERE is no portion of the living skeleton more liable to numerous and varied diseases than the maxillary bones—the inferior maxillary in particular. The morbid aptitudes of this organ spring so naturally from the complexity of its structure and its great degree of vitality, that the attentive observer can regard the fact only as a consequence of that peculiar organization by which these bones partake of an organic activity and a nutritive movement, to a greater degree than occurs in any other part of the bony system.

These bones offer a protecting canal for a vascular and nervous apparatus, and receive from it a great number of nutrient vessels. Besides, the presence in the jaw-bone of those dental bulbs, which are awaiting their successive evolutions, is a permanent cause of irritation and congestion, the intensity and duration of which are in proportion to the difficulties and anomalies attendant upon their development. There are also morbid influences, of which the action, however distant, is not the less certain; and to these must be added all the diseases to which the tooth is liable in the various phases of its growth. These are slight and circumscribed, and often pass unperceived; but by their persistence and extension in some cases, and especially by their extension into the alveolar tissue, they become points of departure for osseous lesions, which require the intervention of art.

An analysis of the vast amount of information which has been accumulated in late years upon the diseases of the jaw has convinced me of the justice of the etiological view already stated, and I feel confident that the student who approaches this question of pathognomy, by the same means, will attain the same result. I will endeavor to justify my opinions upon the subject in the following essay, which I have divided into two chapters—the first, devoted to the consideration of the anomalies of nutrition; the second, to those of the position of the teeth, with the intention of exhibiting in both cases the connection existing between these anomalies and the various morbid conditions of the maxillary bones.

CHAPTER FIRST.

ANOMALIES OF NUTRITION AND DEVELOPMENT.

OF all the observations embraced in this chapter I can find none more worthy of place in the first rank than one which I have already reported to the *Société de Chirurgie*. The case offers an instance both of anatomical anomaly and pathological lesion—a morbid duality not only very rare, but unexampled in the human species, if I may judge from the fact that strict research has not found another on record.

OBSERVATION 1.—Osteo-dental tumor, size of a large egg, encysted in the thick part of the inferior maxillary; ulcerous inflammation of the parietes of the cyst; numerous ossifluent fistulæ; resection of the left half of the body of the jaw and a portion of its branch. Cured.

Early in May, 1855, M. L., a banker of Guadeloupe, introduced me to his son, whom he had brought to Paris with the intention of subjecting him to the necessary surgical operation for the remedy of a disease of the inferior maxillary, which had made its first appearance when the patient was five years old.

History of the disease.—At that period (five years) young L. suffered from pains in his left jaw; they were for some time intermittent, then continuous and acute. When the patient was seven years of age, two small healthy molars were extracted, under the belief that they were preventing the evolution of the second teeth. The operation gave great relief, and the pain ceased; but shortly afterwards a small, round, hard tumor appeared on the external face of the jaw, near the alveoli of the teeth that had been removed. The tumor caused no suffering to the patient, and made no sensible progress for a period of eight years. The whole of the left side of the jaw then became tumefied, and the bone, in the words of the patient, broadened and rounded. He also observed at this time that the large molars were wanting in the diseased part, while they were regularly developed on the right side.

This morbid enlargement was accompanied by frequent fluxions of the gums, cheek, and whole left side of the face. The recurrence of this fluxion was attended by great pain, and caused an increased tumefaction in the soft parts to such an extent that the difference between the sides of the face became absolute deformity.

In November, 1854, a violent inflammation occurred in the base of the jaw and the cervico-maxillary region. Antiphlogistic treatment was employed, two applications of leeches were made, and the inflammatory symptoms decreased, and, fifteen days afterwards, purulent matter formed in the thick part of the cheek, which opened spontaneously, allowing the issue of a large quantity of fetid pus. The opening of this abscess became

fistulous; the surrounding tissues thin, detached, and under them the bone was naked for a very considerable extent.

Actual condition.—Young L., aged twenty, strong, well-developed, with an excellent constitution, and health perfect in all respects, excepting the local affection.

The disease appears externally in a considerable tumefaction of the left cheek, which is more than three times its natural size; and the tumor has caused a very marked eccentric development to the corresponding maxillary bone.

When the patient opened his mouth, which he did without effort, the whole left side of the bone was seen to resemble a large turkey-egg; the base of the jaw being confounded, without appreciable line of demarkation, with the internal and external faces which describe a very considerable curve.

The tumor is uniform, without depressions, or any irregular swellings upon the surface. It does not yield to pressure, and no part of it gives that sound of crepitation which is a characteristic of attenuation of the osseous tissues. The external swelling hides the superior and lateral part of the neck, descending in front several centimetres, [0·3937 inch.] The enlargement of the bone has forced the tongue from its true direction, and the floor of the mouth has been driven from the left to the right.

The alveolar ridge, singularly enlarged, contains none of the grinding teeth except the first bicuspid, which stands regularly in its socket. The tissue of the gums is dark red, and unusually thick and hard. In a circumscribed spot, about the size of a twenty-centime piece, the tissue is broken, and exhibits an unequal, wrinkled, grayish surface, which gives a dry sound when struck with a metal probe, as if the crown of a tooth were hidden in the cavity.

The disease does not extend in front beyond the symphysis of the chin; behind, it reaches a point on the posterior edge of the ramus, that can be touched by inserting the finger into the isthmus of the throat. The upper portion of the ramus is perfectly healthy, as is also the neck and the condyle.

I will add, in order to complete the symptomatic description, that there are many ossifluent fistulous openings at the base of the tumor; two fingers'-breadth from the left labial commissure there is an old purulent collection that has caused the detachment of the skin, which is purple and very thin, to the extent of four centimetres. Finally, many submaxillary lymphatic ganglions are much hypertrophied and hardened.

The functional disorders arising from this pathological condition, which were very slight at first, are now increasing every day; vocal utterance is embarrassed; mastication is painful and incomplete; deglutition is effected with difficulty; and respiration is very difficult every time inflammation is renewed in the tumor. Lastly, the patient suffers from two serious incon-

veniences, one resulting from the very marked deformity of the face, and the other from the incessant flow of fetid pus proceeding from the complicated fistulæ of the osteo-dental caries.

Diagnosis of the disease.—An analysis of what has been already stated will give us, in the first place, a fact of primary importance, which I think shows the very origin of the evil, and seizing its intimate nature, exhibits the initial point of departure. I refer to the connection between the occurrence of the disease in the jaw and the process of the second dentition, in which the jaw-bone was the center of a fluxion, determined and maintained by the excessive nutritive action of which it was then the seat.

A little later, that is at seven years, the precise period when the growth of the dental bulbs is completed by their eruption from the alveoli, the pains increased to such a degree that the extraction of two healthy teeth was considered necessary. This operation caused only temporary relief, and was soon followed by a new morbid manifestation, viz., the tumor. If these remarks are not sufficient to establish the histological connection that I have in view, let us add the additional fact that appeared some years later—the absence of the large molars. This anatomico-physiological aberration, the morbid accidents that preceded it, and the pathological fact that occurs in the tumor, cannot be a mere coincidence.

But if it is so easy to reach the origin of the evil, is it equally easy to explain its nature? This part of the problem may be more difficult, but I do not believe that the solution is impossible.

Taking into consideration the slow development of the tumor, the uniformity of its exterior, its circumscribed limits, the firmness of the different parts of its surface, bounded in every direction by a bony plane, I would immediately assume the existence of a pathological product in the center of the maxillary, and that the eccentric development of the bone had followed the growth of this product in such a manner as to inclose the whole of it in a cyst. I have often observed similar proceedings of nature, and I dwelt upon them in my inaugural thesis of 1840, (*Researches into the Nature and Treatment of the Cysts of the Maxillary Bone*,) under the designation of the osseous cyst containing a solid product. I believe that the composition of the latter cannot be ascertained with certainty, and, therefore, without speaking of the nature of the anatomic elements which constitute the pathological production, I will restrict myself to diagnosing to the center of the maxillary bone the existence of an omeomorphic tissue—considering the hypertrophy of the cervical ganglions as the result of a sympathetic irritation, and not as a symptom of cancerous infection. The unimpaired health of M. L. is sufficient ground for this belief; for, if the malady had been of this malignant character, it would have produced more serious local disorders, as well as deleterious effects upon the general system.

Unwilling to depend entirely upon my own skill, I appealed to two of

my colleagues of the Chirurgical Society, MM. Michon and Denonvilliers, who, after examining young L., agreed with my opinion upon the method of the development of the disease, its nature, and the necessity of resecting the half of the body of the bone—an operation which I performed with their assistance, and in presence of MM. Pinel de Golleville and Mongeal, and M. Felix Baudoin, a distinguished pupil of the Paris hospitals, on the 16th June, 1855.

Operation.—The patient was laid on his right side, his head raised and resting on a rather firm pillow. Standing in front of him, I commenced the operation, having first administered chloroform.

By means of an incision commencing in front of the lobe of the ear, turning the base of the tumor and terminating at a centimetre from the projection of the chin on the right side of the face, I circumscribed a large flap, which, when dissected and thrown over upon the cheek-bone, appeared to be formed of the whole of the thick part of the cheek and of part of the lower lip. The dissection of the soft parts took considerable time, as much on account of intimate connections, in many places, with the bones behind them, as on account of the ligatures necessary for the various arterial branches.

Section of the bone.—Keeping the flap raised, I sawed the bone in front, upon the alveolus of the canine tooth, which I had previously drawn. Behind, I cut through the ramus, between the angle of the bone and the origin of the dental canal. In making the front cut I found a tooth placed horizontally in the thick part of the bone, precisely under the alveolus, through which I was cutting. Instrument, a chain-saw.

Ablation of the tumor.—After isolating the osseous tumor by these two cuts, I detached the lower parts, using a probe-pointed bistoury to divide all that part of the floor of the mouth that adhered to the internal face of the jaw. While one of my assistants held the tumor turned from within outward, I cut behind the muscles of the submaxillary region, turning the edge of the bistoury toward the tumor, to avoid the base of the tongue, and especially the anterior column of the velum of the palate, which, as I have said, marked the termination of morbid development. The division of the tissues required numerous ligatures for the arterial branches. I also introduced a small ball of wax into the orifice of the dental canal that was opened by the saw, thus stopping the hæmorrhage from the dental artery. To complete the operation, and remove all diseased tissues from the wound, I cut away two lymphatic ganglions that were situated under the tongue, above the genio-hyoidei muscles and the anterior belly of the digastric muscle. This done, I waited until all danger of hæmorrhage was over before proceeding to dress the wound.

The flap, left to itself, fitted into the wound by its own weight, and the continuity was entirely complete. The edges were easily brought together and kept united by a twisted suture; this I disposed in sixteen points, in

such a manner as to allow a hiatus for the most dependent part; here I placed the threads of a ligature, so as to afford a permanent and easy issue for the purulent fluids. A fenestral bandage, a coat of cerate, a pledget of lint soaked in cold water, and, outside of all, a bandage round the chin, completed the dressing.

Remarks on the process.—The method used in the operation was especially directed to the preservation of the lower lip, by avoiding an opening on its free side, which would have divided it throughout. Precautions were taken, also, for the preservation of the flap. This was done by making the incision, which determined the length of the wound, of sufficient extent to allow the easy introduction and free play of the saw. The rule might be stated thus: instead of confining the incision within the limits of the tissues that are to be removed, let it extend two or three centimetres beyond them, both before and behind; this allows the dissection of the soft parts to be carried farther, and a greater separation can be obtained between the edges of the wound and its angles; this permits the surgeon free use of the saw.

Consequences of the operation.—The patient, when carried to his bed, and his head raised upon a horsehair pillow, soon fell asleep; wakened at the end of an hour, and rejected a large quantity of blood, without any effort of expectoration; remained until night somnolent and prostrated; some spoonfuls of broth administered every two hours—in the intervals, wine and water; reaction very evident by eight o'clock in the evening; skin hot, face animated, pulse at 106 per minute.

June 17, day after the operation. After a restless night the fever is intense, (130 pulsations.) No emission of urine for twenty-four hours. Hypogastric region tight, not painful; percussion proves considerable expansion of the bladder. On attempting to introduce the catheter into the bladder, the spasm of the urethra rendered the introduction of the *sonde* very painful, and I desisted. Prescribed friction with camphorated oil upon the hypogastric region, followed by a large cataplasm—resulting, as intended, in an abundant discharge of urine at the end of two hours.

The wound in a satisfactory condition; no tension, swelling, nor unusual redness along the course of the sutures. The tissues having joined at some of the points left open for the issue of the fluids, I reopened them. Withdrew the pin nearest the symphysis of the chin. Same dressing as before—tisane, gum-water. Diet absolute.

June 18. Through the night there has been continual and intense febrile action; pulse at 135. Patient restless and sleepless. Pulse now 120, slight, hard, depressible. Heat of the skin moderate. Patient declares himself better; complains principally of the fatigue from the constant expulsion of bloody saliva. I remove all the pins except three in the middle of the wound, and substitute a simple bandage for the wet compress. *Prescription*—chicken-broth, opiate for the night.

June 19. Fever diminished; pulse 90. The three last pins removed, and a moderate pressure directed from the base to the perimeter of the flap. I provoke a flow of pus, abundant and of good character, issuing at the point of the wound where the ligatures are placed. *Prescription*—broth, arrow-root.

June 20. Same as yesterday; night calm; sleep prolonged. Edges of the wound well joined throughout the anterior third.

June 21, sixth day after the operation. Sensibility exists in the neighborhood of the wound; no elevation of pulse.

June 22. After midnight, patient was seized with severe chills and violent headache, with coldness of the lower extremities. Fever followed the chill, pulse rising to 130, and now but little lower. Cheek tumefied, hot, red, painful to the touch. All the characteristics of incipient erysipelas. This complication, occurring on the seventh day, threatens to compromise the union of the parts, still incomplete through a large portion, and not strong where it has taken place. Happily it had no serious effect; the recovery was retarded for some days, but cicatrization followed regularly.

I ascribed the erysipelas to gastro-intestinal irritation, and combated it externally with mercurial ointment, which, failing of effect, I used colloidion; internally, by purgative salts and acidulated and diluent drinks.

June 24, and the following days. The erysipelas progressed, giving place, especially during the first days, to an intense febrile reaction. From the left cheek, its point of departure, it successively invaded the ala of the nose, the eyes, temple, and the hairy skin that had been shaved; terminated behind by the course of the occipito-parietal suture. From the left side it passed to the right, spreading over the cheek in a period of ten days.

The erysipelas being conquered, the patient recovered rapidly. Strengthening food was carefully administered—at first pottages, then solid food—and on the eighth day after the operation, young L. partook freely of bread, meat, and other articles requiring mastication. Toward the end of July I presented him before the *Société de Chirurgie*—the cicatrice was linear, and the face showing no sign of deprivation of parts or other deformity.

(To be continued.)

SEPARATING TEETH BY MECHANICAL PRESSURE.

BY J. CANNING ALLEN.

It is well known that the object of this operation is generally to obtain space to fill properly, or for the perfect removal of superficial caries; I shall, therefore, without any further premising, proceed at once to speak of the evils arising from improperly and imprudently separating teeth in this manner.

Forcing teeth apart by mechanical pressure moves them from their original positions and starts them in their sockets. Now, though the simple operation of merely moving teeth in their sockets may seem to be of but little consequence, yet, to the observing practitioner, who has so many opportunities of seeing the pernicious effects resulting from this operation when mal-performed, the manner of its proper execution must be a matter of no trifling weight. How often do we hear persons remark, who have had their teeth separated in this way, that they will never have it repeated, giving as a reason that ever since the completion of the operation these organs have been continually getting sore and painful. I am compelled to acknowledge that in many cases this statement of the matter is but too true.

Are these consequences *necessary evils* following this operation? In my humble opinion they are not, but occur only (in the majority of cases) where the work has been injudiciously carried on. I now purpose speaking, with as much brevity as possible, of the different articles used by our profession for separating teeth by mechanical pressure; their respective merits and demerits; finally concluding with a few unobtrusive suggestions upon the best method of progressing with this operation.

The materials in general use for this purpose consist of wood, cotton, india-rubber, etc. I object to the use of wood on account of its being a little too active, as well as the inability to apply it in many cases; for instance, in mouths in which the teeth are in immediate contact, pressed and wedged tightly together, it will be found exceedingly tedious and difficult to push a piece of wood between them, as it is very apt to break or crush in attempting to apply your pushing force. Now, as we have substances not possessing these disadvantages, and yet equal to wood in every other respect, I have abandoned its use, (except in some rare cases.) Of cotton, I would say, my experience pronounces it better in most cases than wood; as, being softer and more yielding in character, it more readily accommodates itself to the different widths of the spaces, and consequently can be used with more facility. India-rubber, to my mind, is more objectionable than either wood or cotton, the very qualities which recommend it so highly to the use of some dentists forming the ground-work of my objections, viz., its activity and power. It is altogether, for my use, too active, too powerful. The advocates of this article may say they can do more in one hour by its use than they can with any other in two; all of this I frankly admit; and, in so doing, frame my argument against it, considering, as I do, that it does the work too quickly, too effectually: in fact it overdoes it—producing such a sudden and violent separation, that the alveolo-dental periosteums take on a grade of inflammation from which in many cases they never completely recover; leaving, even in those instances in which the inflammation does subside, an unpleasant chronic

irritability. If india-rubber is used at all, it must be with a degree of caution and care that will never repay for the trouble taken.

I now come to speak of what, in my humble opinion, is the very best material that can be used for wedging teeth apart, and that is ordinary tape, varying in thickness to suit the different-sized spaces. This substance possesses advantages over most others, as far as I am capable of judging, and its application for this purpose was first suggested to me by Prof. J. D. White. The superiority of this article consists in its exerting a gradual and even pressure along the whole lateral surfaces of the teeth, on account of its being the same thickness the entire width of the tape; and, again, having a thin, sharp edge, it is much easier to pass it up between the teeth than anything else I have mentioned, for cotton is very apt to roll and become lumpy when you attempt to force it into a space that is at all tight; while wood, if thin enough to slip up between, will crush and break, and if any thicker will not pass up. I therefore honestly believe, taking everything into consideration, that tape is the best thing we can use to accomplish this end.

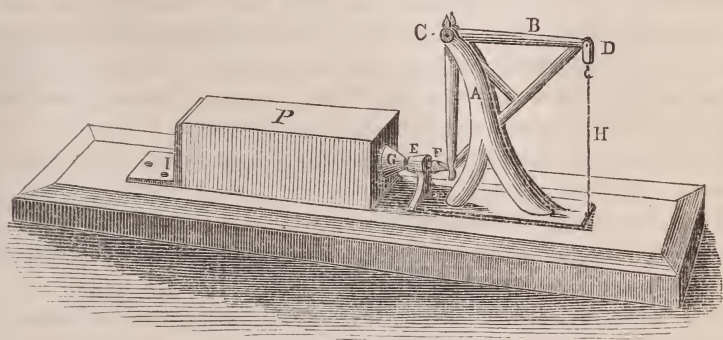
In conclusion, permit me to say that, whenever teeth are to be separated by pressure, no matter what means may be used to bring about that separation, the entire operation, from the beginning to the end, should be slowly and gradually performed. I consider it infinitely as important as proper filing; for, even when a tooth is so filed as to eventually cause decay, the disease can be stopped and the preservation of the organ secured by the introduction of a solid, well-finished filling; but once lash the alveolo-dental periosteum up to a high stage of inflammation, and you have brought to birth one of the most harassing and stubborn maladies the dentist has to treat. Here mechanical skill and perfection of manipulation availeth naught; there is now no difficult cavity upon which you have merely to exercise your exquisite fingering and superior instrumental performance, to save the tooth, but you have a disease which baffles, and oftentimes defies, the treatment of the most experienced and scientific—a complaint which, after trying your patience for weeks, and nonplussing every description of remedy, finally terminates with the extraction of the offending part.

THE FORCE OF EXPANSION OF PLASTER OF PARIS.

BY T. L. BUCKINGHAM, D.D.S.

IN my last communication to the DENTAL COSMOS, I endeavored to show the amount of expansion of plaster of Paris when mixed with water and allowed to set. I now want to show the force of the expansion.

After trying numerous experiments with it, such as filling egg-shells, small phials, tumblers, bowls, etc., some of which broke with the expansive force and some did not, I concluded to make an apparatus that would show the force exerted, and estimate the force by weight. But as I had no idea that the force would be as great as it is, the first apparatus I made proved to be too frail to measure it. It would only measure with any certainty up to four pounds to the square inch. I was therefore compelled to make another, and in order to show the correctness of my experiments, I will describe it.



A, with its fellow on the opposite side, are two upright posts of brass cast to a bed-plate, which is screwed to a mahogany base; B B is a beam moving on the center pin C; D is a pin to support the hook to which the cord H is attached; F is the knife-edge of the bolt which moves easily through the permanent post E. This bolt has a brass cone G screwed on the other end to receive the pressure from the plaster; I is a permanent brass bracket screwed to the mahogany base, five inches from the cone G; P is the plaster to be tested.

The knife-edge F presses on the perpendicular arm of the beam B, four inches from the center pin C. The pin D passes through the horizontal arm B, the same distance from C. It is therefore evident that any amount of weight attached to the cord H would exert an equal amount of pressure on the edge of the bolt F.

To perform the experiments, I cut two plates of brass exactly two inches square; one I stood up against the bracket I; the other against the cone G. Then, by standing-up sides, I had a trough to pour the plaster in. This trough was lined with paper to prevent the plaster from adhering to the bottom or sides. The plaster was mixed to about the consistency we use it for making casts. It will be seen that the plaster to be tested was two inches square and five inches long, (although the length would have no effect on the experiments,) as I was testing for the force of the expansion, and not the amount.

I first tried the experiment by attaching ten pounds to the cord; then I increase it to twenty, then forty, then sixty, then one hundred, and finally, I put on one hundred and twenty pounds, which about prevented the expansion.

In order to know when any expansion had taken place, I put the end of a thin sheet of brass, two inches long by three-fourths of an inch wide, in the joint, between the shoulder on the bolt and the brass post E. The least movement in the bolt would open this joint, and this piece of brass would fall out. In the last experiment, the piece of brass did not fall out, but it would barely remain in a horizontal position. I did not try whether the force of the expansion would have been greater or not, by confining it on the sides and above. It was perfectly free to expand in any direction except in length. I have no doubt that had the plaster been confined, so that it could not have expanded laterally or upward, the force on the ends would have been much greater.

I had no idea that the force of the expansion would have been as great. I had calculated on about ten, or at most twenty pounds; but when it amounted to one hundred and twenty, I was surprised. This is equivalent to thirty pounds to the square inch—the block of plaster being two inches square, by five in length.

We see by these experiments, that the force of the expansion would be sufficient to warp the strongest plate out of shape; whether it would do so or not to the plates made for shallow mouths, I must let every operator judge for himself; but certainly in cases where the plate is so deep as to confine the plaster, the plate would be bent.

WHAT ARE OUR DENTIFRICES?

BY S. S. BLODGETT, D.D.S.

EVERY dentist is responsible in a great measure for the healthy condition of the mouth and dental apparatus of his patrons.

We may be careful to impress upon them the importance of having none but the best material used for dental operations. Careful that every operation is performed in the most scientific manner; but are we careful what we prescribe and recommend for a dentifrice?

Decay of the teeth being caused in almost every case by external agents, shall we not look well to see if our art cannot counteract the effect of these agents?

We may as well preach temperance sermons, or distribute temperance tracts, as to try to influence a change of food that will correct the fluids of the mouth. People will eat what they like, be the consequences what they may, and the teeth must masticate, and the stomach receive a con-

glomeration that would astonish us to view chemically. But if we cannot dictate to our patients their diet, we can insist upon the use of preparations that will neutralize the effects of these fluids upon the teeth. Many dentists say their patients require to use nothing but water; others prescribe the most gritty substances; while others, either through indifference or fear of thwarting the will or wish of their patients, allow them to use anything or nothing at their will.

There is, in my opinion, no dentifrice used so baneful in its effects as charcoal. I doubt, if there is any dentist, with fair practice of ten years, but has seen worse effects from its use, than from the use of acids. This is the case in Northern New York and Canada adjacent. I have had in my own practice to insert three entire sets of teeth—where the gums were destroyed—the teeth became loosened and dropped out, from the free use of charcoal. In two of these cases, the gums are permanently discolored, so there can be no mistake of its agency.

The effect of charcoal is purely mechanical; it is as sharp as diamond dust, and the finer, the worse in its effects. Being perfectly insoluble in the fluids of the mouth, it insinuates itself between the neck of the tooth and the gum, producing ulceration, recession, and final loss of the tooth itself.

Next to charcoal, in their bad effects upon the teeth, are the various kinds of boles and earths, under different high-sounding names, and popular as “tooth-cleaners.”

What the public seem to demand in this age of steam, is something that will *whiten* the teeth at once, no matter how long they may have been neglected. When they take the notion to “scour” their teeth and get down the family tooth-brush, they want some “stuff” that will produce the result instant. The effect must be produced as quickly as they can acquire this so-called change of heart in their high-pressure revivals; and the similarity does not end here; all they think necessary is to make one grand effort, one tremendous splurge, and tartar, and rust, and filth collect again on heart and teeth alike.

I do not wish to be called irreverent. But there is religion in cleanliness; real piety in a sweet breath—there is an odor of loveliness about it that indicates the possessor's thoughts and actions are alike pure.

I would my patients were as particular about this, as some whom we call heathen, where a man loses caste by inattention to personal cleanliness. That some persons can keep their teeth clean, and breath pure and sweet with much less attention than others, there can be no doubt. Every dentist sees this every day. But does he look for the cause? Has he taken the pains to examine the surface of the enamel of their different teeth? If so, he will find in the one case the surface is much harder, or, if I may be allowed the expression, the enamel appears higher polished, showing that the enamel organ during its period of

labor was uninterrupted; while in the other case, by an examination with a glass, we find the enamel rough and imperfect, showing that during its formation, either from hereditary or physical derangement, the organ did not perform its natural functions. Such teeth require far more care both from patient and dentist.

I would have my patients use no kind of powder upon the teeth oftener than two or three times per month; then I would not have them use the brush, but take some finely prepared chalk, and a stick of red cedar, orange, or hickory, about three inches long, wedge shape, and from one-eighth to one-quarter inch wide; with this polish the enamel, being careful not to irritate or injure the gums.

The great dentifrice that should be used at all times, and under all circumstances, is soap. Its alkaline properties serve to neutralize the acids contained in the fluids of the mouth, and its cleansing properties will correct the breath and remove offensive odor sooner than any article I have ever seen tried. I have seen the best effects from its use, in tenderness and inflammation of the gums denoting acrid secretions; I have never known it fail in its result.

I throw these crude thoughts before the profession. I have found a fault, and suggested a remedy; if any one can suggest a better, will he do so?

OGDENSBURG, N. Y.

BICUSPID ROOTS—DIFFERENTIAL CHARACTERS.

BY C. K. FISKE.

I HAVE noticed that anatomists, in their descriptions of the individual teeth, have all agreed in making one rather important mistake.

So far as as I can find, the various works on odontology are incorrect in this particular. In describing the formation of the roots of the bicuspids, they state that the *second* upper bicuspid has a double, or bifid root, while, to the contrary, every dentist of experience must have observed that it has a single root in a large majority of cases.

It is the *first* superior bicuspid that has the bifid root, and this in almost every instance; which must have been noticed by all who have extracted many teeth, or had experience in "fang filling."

In extracting this tooth, there is always danger of fracturing the roots by the slightest rotatory motion, whereas we may venture to rotate moderately in extracting the second upper bicuspid in all cases.

Anatomists have also omitted to point out the differential characters of the roots of the upper and lower bicuspids, having described them all as having a *deep* vertical groove upon each side, while, to the contrary, it is only the second upper bicuspid that has a deep groove, and the first upper, in some instances, where it is not bifid. The roots of the lower

bicuspid are usually round, and, if grooved at all, very slightly, and can be rotated in extracting as safely as the cuspidati or incisors, and with a proper instrument can be removed by this force with less pain than by any other motion.

I will here quote a few lines from Cruveilhier. In giving the *general* characters of what he calls the *small molars*, he says: "The root is generally single, but sometimes double or bifid; when single, it has a deep vertical groove on each side." Then, in giving some *differential characters*, he says: "The *second* upper bicuspid has generally two roots, by which it is distinguished from the others."

The reader will see that the only instance in which this author has pointed out any distinguishing characters in the *roots* of this class of teeth he has attributed them to the wrong teeth. Hunter has made the same mistake in his descriptions, but his drawings are right, showing that the artist employed by him has been more correct than the professor, having, without any doubt, delineated precisely from nature.

To sum up, then, I would describe the roots of this class of teeth as follows: The *first* upper bicuspid is distinguished from all others by being double rooted, or bifid; the inner root being shorter and smaller than the outer.

The root of the second upper is single, deeply grooved anteriorly and posteriorly, and has two nerve canals, running to, and terminating *separately*, at the apex.

The roots of the lower bicuspid are single and nearly round, being but slightly grooved on each side, and generally have but one pulp canal, like the cuspidati.

In the great number of specimens I have had the opportunity of examining, any deviation from this description has been the exception, but not the rule.

ST. JOHN, NEW BRUNSWICK, Oct., 1859.

FINISHING PLATE-WORK.

BY J. L. SUESSEROTT.

HAVING a consciousness that your Journal, and the one which formerly occupied its place in our literature, has given me many valuable hints—in value more than ten times the amount of subscription price—with your permission, I will give to the profession my method of finishing plates; a method which may possibly be familiar to many of my professional brethren, but one which I am fully persuaded is not generally adopted.

The first step is to procure, and attach to the lathe, a three- or four-pronged fork, or a screw such as is used for withdrawing a load from a gun. Upon this a good, smooth cork is fixed, and, with a sharp knife,

turned to any desired shape. The cork is then saturated with water as well as it can be, and powdered pumice placed upon it. If we have been careful to remove all excess of solder from our work—which can easily be done by a bur attached to the lathe—we can, with the cork and pumice, make a very smooth surface, and this can be still more perfectly accomplished by substituting very finely powdered spar for the pumice, after we have removed the larger scratches with the latter. By continuing the cork for a little while after the above-named powders have been used off, we avoid the use of the Scotch-stone; and finally we dispense with the burnisher, by taking a new cork with a piece of chamois or buckskin stretched upon it, and going over the plate in the same manner as before, with the lathe revolving very rapidly.

A higher color can be given to the plate, by the use of the burnisher after the above proceeding, but we can certainly not produce a smoother surface.

Some precaution is necessary by those who have never used the lathe in finishing plates; in the first place, a careless use of the bur, in removing the excess of solder, might result in the weakening of the piece by removing more than necessary, or, what would be still worse, holes might be eat entirely through the plate. Again, in polishing, if a little care is not taken, the fork or screw, whichever is used, may pass through the cork, and, before the operator is aware, he will have inflicted an injury that will be difficult to repair. A small amount of experience—that which is essential in the proper performance of every nice operation—will enable almost any one, even those, to use a common expression, “whose fingers are all thumbs,” to finish their work in about one-eighth of the time that the most expert workman would require for the accomplishment of the same by the old method.

As this is the age of locomotives and telegraphs, I have been induced to think that anything that would save time would be gladly received.

CHAMBERSBURG, Nov. 7, 1859.

EXPOSED NERVES.

BY G. EZRA M'KOWN.

THE disease indicated in the above caption is one *deserving* the consideration of every practitioner of dentistry; and having been interested by the remarks in the DENTAL COSMOS, between one of your able corps and Prof. Taft, of Cincinnati, not wishing either pro. or con. to enter into the effects of “Nitric Acid” as applied to “recently exposed nerves,” but with *your permission*, I wish to lay before the readers of the DENTAL COSMOS the method I have employed for the last three years, and suggested to me by Dr. Ambler, of Cleveland, during an operation on my teeth. A case to illustrate. In excavating a cavity in the posterior

proximal surface of the left superior lateral incisor, it became evident that the nerve was covered by a very thin lamina of bone, and in excavating to form the proper shape to retain the filling, this part also became loose, and was removed, causing the pulp to bleed *profusely*. Applied a pledget of cotton, saturated with creosote and tannic acid, to arrest the hæmorrhage; retained it from three to five minutes; the pulp was found cauterized and of a whitish color. The cavity was then thoroughly washed with tepid water and camphor, and after being properly dried, a small particle of cotton, saturated with ol. creosote, was put in contact with the pulp as an *intervening* substance. The cavity of decay was filled with "crystal gold," introduced in such a manner as to protect that part from the *main* or *direct* pressure. Two years and a half have elapsed, and it has never given any trouble, neither has it lost its natural color or vitality. One more case (out of *many I could mention*.) October 1, 1857.—Mr. B., aged 24 years, nervous temperament, had a number of teeth filled. The first right superior molar had a large cavity in the anterior proximal surface; dentine sensitive; excavated without wounding the pulp; cauterized with creosote, and filled with "Hill's stopping." July 6, 1859.—The tooth having caused no inconvenience, removed the stopping to insert a more permanent filling; to my surprise, and the gratification of my patient, we found the dentine not only in a normal condition, but the nerve protected by a thick stratum of dentine, resembling *crusta petrosa* in appearance, but not in structure. To be brief—it was excavated and filled without any inconvenience. The tooth and contiguous parts have continued in a normal condition thus far. Now I do not advocate *this* as anything new, but merely as my *mode of practice*; and, taking teeth as they are presented, if the nerves *have* been previously exposed, with no symptoms of periostitis, have had a better percentage of success than by destroying and extirpating the nerve, and filling the *fang*, or by any other method (that has come under my observation) that has been devised.

MOUNT VERNON, OHIO.

PROCEEDINGS OF DENTAL SOCIETIES.

PENNSYLVANIA ASSOCIATION OF DENTAL SURGEONS.

REPORTED BY GEO. T. BARKER, D.D.S.

A MONTHLY meeting of the Association was held on the evening of November 15th, at eight o'clock.

President, Dr. Dillingham, in the Chair. Members present, Drs. Harris, Roberts, Peirce, McQuillen, McCurdy, Suesserott, Buckingham, Woodnut, Hopkins, and Barker.

Dr. T. L. Buckingham having been appointed to read an essay at this meeting, stated that he was unprepared ; but would present to the notice of the Association two models which he had made : the *first*, for testing the expansion of plaster of Paris, which was described in one of the previous numbers of the DENTAL COSMOS ; the *second*, for testing the force with which the same would expand. He alluded to his efforts in perfecting these models, and also to the result of his experiments. The apparatus evinced considerable mechanical ingenuity, and the remarks were listened to with attention by the members.

At the close of his remarks, the President stated that the Association would take up the subject of

“THE CAUSES AND TREATMENT OF SENSITIVE DENTINE,” which was selected at the last monthly meeting for discussion.

The subject having been proposed by Dr. Barker, was opened by him. He said that he should confine his remarks to the last portion of the question, viz., “The Treatment of Sensitive Dentine;” leaving the “Causes” to the more experienced members of the Association.

In our intercourse with patients, how often do we hear the remark, “That it is less painful to have teeth extracted than to have them filled;” and this peculiarly sensitive condition of the teeth is observable in a large proportion of our patients, and in those persons, too, whose nervous organization (with that exception) we should consider unexceptionable, and whose general health and appearance would indicate a most perfect development of every tissue ; but we find these same persons losing their usual firmness and determination of will upon submitting to our operations. This he well knew to be the case, having but a few days previously submitted to an operation upon a sensitive cavity. The cavity was superficial, and the attendant pain of excavation was unbearable. He suggested to the operator to place into the cavity a small portion of the sulphate of morphia, covered by a pledget of cotton, there to remain for twenty-four hours. This was done, and on the succeeding day the tooth was excavated with but little pain.

He well knew that some of the most eminent members of the profession had discarded the use of all palliatives, preferring to rely upon the quick and vigorous cuts of a sharp excavator ; but though he felt that much might be accomplished by so doing, yet was assured that there were many cases in which palliatives were essential and useful, allowing the patient to submit to the operation more cheerfully, and also assisting the practitioner to make his operation more perfect. He would not be understood as advocating the use of arsenic and chloride of zinc—preparations which would possibly, by absorption, induce the death of the pulp—but the use of sulphate of morphia could not be attended with like results, even if left in the cavity for a long time ; in many cases he had been gratified with the results.

Dr. McQuillen regarded it as a matter of some moment to determine the true nature of the subject under consideration, as upon a correct knowledge of that can proper practice alone be based. His observations had forced him to the conclusion that it was a physiological rather than a pathological state, though he would not deny that the latter condition could not exist. Of one thing he felt perfectly satisfied, that it was not inflammation, as that could not occur in a tissue in which there are no blood-vessels. In support of this position, he compared the conjunctiva, bone, cartilage, and dentine with each other, and first directed attention to the appearance presented by the healthy conjunctiva, in which vessels are not perceptible to the naked eye, but on the application of an irritating substance, a net-work of capillary vessels of considerable size soon becomes visible; then to the fact that, in a specimen of injected bone, from which the inorganic constituents have been removed, the vessels can be seen in close proximity to each other, ramifying through the mass; and remarked that each of these tissues are subject to inflammatory action, present the four phenomena, and are followed by the usual results of inflammation; while cartilage, on the contrary, when examined under a powerful lens, presents no appearance of vessels, is unquestionably nourished by imbibition, and, after the most careful examination on the part of reliable observers, it is positively denied by eminent pathologists that inflammation ever occurs in that tissue;* and said if it is questionable here, it is still more so in dentine; on examining a section of which under the microscope, innumerable dentinal tubes are observed radiating from the pulp cavity, but no blood-vessels can be found; indeed, it would seem a work of supererogation to have placed them there, as the capillary attraction resident in the tubuli is sufficient to effect all the results that could be accomplished by their presence, viz., circulation of the liquor sanguinis in the tissue. In illustration of capillary attraction, the experiment of immersing one end of a minute tube, held in a vertical position, in a fluid of sufficient tenuity, when it will be found to ascend some distance up the tube, was referred to; adding, that it was owing to this purely physical force, in connection with the vital affinity for the nutrient fluid, that characterizes all organized tissues, that the circulation in the vegetable is effected. He then described the characteristics of the different stages of inflammation, viz., simple vascular excitement, active congestion, true inflammation; and desired to know whether there was anything analogous to these presented in sensitive dentine. He thought not. Referring to the three theories that have been advanced to account for the sensation: First, pressure made

* Rokitsansky remarks on this subject: "From our present knowledge of the texture of cartilage, as well as from direct observation, we are compelled to deny that true cartilage, while its texture is normal, ever inflames." (Pathological Anatomy, vol. iii. p. 211.)

by the instrument upon the liquor sanguinis in the tubuli, making an impression on the dental pulp; second, vibration or the conduction of the shock of the operation through the solid dentine to the pulp; third, the impression made upon the delicate nerve-fibrils, starting from the pulp and occupying the dentinal tubuli—remarked that the last view had always appeared to him the most plausible; and the recent discovery by Mr. Tomes, of nerve-fibrils in the tubuli, goes far to confirm the theory. In treating such cases in former years had employed arsenic, morphia, chloride of zinc, tannin, creosote, and other remedies; but his experience did not coincide with others in the efficiency of such agents in obtunding sensibility, and of late had depended more upon the rapid excavation of the decay with keen instruments. In conclusion, he fully recognized, and responded to what he conceived to be the claims of humanity, satisfied, as he was, that a decided, rapid, and well-executed manipulation upon the part of the operator, will relieve the patient in a few seconds or minutes, when, by the opposite course, the suffering, instead of being allayed, is frequently prolonged for a considerable period.

Dr. Suesserott could not agree in saying it was not a pathological condition. In his opinion, as the earthy materials of the dentine are disintegrated, the tubuli are enlarged, and no longer protect by their bony walls the nerve-fibrils, which have been demonstrated by Mr. Tomes to pass through them. The fibrils being, in a measure, unprotected and slightly irritated by stimulating substances, become abnormally enlarged, or hypertrophied at their ends. Palliatives may be useful to obtund sensibility immediately before the removal of the diseased part, but cannot be of any advantage if used simply to allay the irritability, the final operation of filling being deferred to some future time. He looked upon the enlarged condition of these nerve-fibrils—which he conceives, upon the authority of Mr. Tomes, to exist—as somewhat the same as that which takes place in the end of a divided nerve of the extremities, where an irritant has been applied, or where the nerve has been included in a ligature. He therefore argued that the sooner the offending part could be removed, by quick cuts of a sharp excavator, the better for the patient and the tooth.

Dr. Buckingham thought dentine might take on inflammation as well as the other tissues of the body. He admitted that the red corpuscles could not enter the dentinal tubes, and therefore some of the phenomena of inflammation would not be present. But as the liquor sanguinis circulates through those tubes, he believed that the circulation might be increased if any exciting cause was present; and if the excitement was still continued, stagnation would be the result, which would terminate either in resolution or in the death of the parts.

He attributed the extreme sensibility on the surfaces of the cavities to an inflamed condition of the parts. When this diseased coating is removed, the healthy dentine below is generally not so sensitive, although

in some cases the sensibility is so great, that it is impossible to excavate without first using something to obtund it.

He had used the sulphate of morphia with great success, employing the dry powder, placing a very small portion of it in the cavity, and confining it there with a pledget of cotton, saturated with varnish, and letting it remain twenty-four hours, or longer if demanded.

In some cases he had plugged over it with tin foil, and allowed it to remain from four to six weeks.

Dr. Suesserott remarked, that having been taught that inflammation is a condition in a great measure dependent upon a *change* in the *capillaries* of a part, and microscopists having failed to demonstrate the existence of such, or *any* organized vessels in dentine, he could not be induced to believe that it is possible for dentine to become inflamed; but that an exalted sensibility can be produced in the microscopic fibrils, that emanate from a highly organized pulp, he conceived to be very possible. Until he can be persuaded that the increased sensibility met with in even large nerve branches, to which the term neuralgia is given, is produced by an inflamed condition of the affected nerve, or is even the *direct* consequence of inflammation, he cannot be induced to believe that the condition, under consideration, is one of inflammation.

Dr. Peirce remarked, it was an object with him to perform every operation as quickly as is consistent with well doing, and, if possible, complete it during one sitting; but like his friend, Dr. Barker, the desire to spare the patient any unnecessary pain, has often induced him to try the various remedies, for the purpose of removing the extreme sensitiveness so often met with. Among those had recourse to were chloroform, chloride of zinc, morphia, tannin, and creosote; the last three used separately or ground together in a paste; also the various preparations of arsenic that have at different times been recommended. The latter, as it is variously prepared, is the only substance which can be relied upon for accomplishing the object; but in *every* case had found the evils resulting from its use so disastrous to the tooth, that long ago he resolved to use it under no circumstances, where it was not desirable to destroy and remove the pulp.

Of the other substances from which he had, at times, gained some advantage, chloroform is the best; when it has given relief, it is instantly, and without pain to the patient; but its beneficial effects are by no means certain—answering only in some superficial cavities.

The preparations of morphia, tannin, and creosote had been used with still less success—always requiring time to give it the opportunity, and even then there being no certainty of the desired effect being produced; for on the return of the patient, has as frequently found the sensibility increased as diminished.

In view, then, of so large a proportion of his efforts to relieve the pa-

tient, having resulted only in a delay of the operation, and sometimes in an increase of suffering, he endeavors, in all cases, to make use of Dr. Neall's remedy, (a sharp instrument, and a quick cut,) adding an encouraging word to the patient. In this way has generally been able to accomplish his object, and complete the operation at one sitting.

Dr. Jas. M. Harris considered this condition of dentine to resemble inflammation of the soft parts, and had found that after a portion of the carious dentine is removed, the remaining portion can be excavated with but little pain. This condition is seen in the soft parts, where we have the line of demarkation separating the healthy from the unhealthy tissue.

He had met with but little success in the use of palliatives, and when employed, had found it necessary to remove an increased quantity of dentine upon the return of the patient, and had therefore discontinued their use, relying upon a sharp excavator, preferring, also, to finish his operation at one sitting.

After a somewhat lengthy and interesting discussion, on the suggestion of Dr. Peirce, "The different methods of preparing and using gold foil in filling teeth," was adopted as the subject for discussion at the next meeting, in December.

The meeting then adjourned.

MICHIGAN DENTAL ASSOCIATION.

DETROIT, October 15, 1859.

THE Fifth Annual Meeting of the Michigan Dental Association will be held in Detroit, on Tuesday, the tenth day of January next, at seven o'clock, P.M.

The committee appointed to select subjects for discussion, report the following :—

Difficult Dentition; the Effect of Diseased Teeth and Gums on the General Health of the System; the Proper Treatment of Diseased Gums; and the Best Method of Arresting Decay in Teeth.

The committee would intimate that each member of the Association write out what he wishes to say on the above-named subjects, to be placed on the records of the Association. If each member would act on the above suggestion, it would make our meeting much more interesting and profitable to the profession.

As there are many new improvements or auxiliaries being introduced to the profession, these meetings cannot but be of much interest to every member of the Association, and a large attendance is expected.

L. C. WHITING, *Sec'y.*

EDITORIAL.

"FEES FOR PROFESSIONAL SERVICES."

WE noticed in "The North American Medico-Chirurgical Review" an excellent editorial on the above, and as it holds forth the views which we have always entertained, we cannot do better than make some reference to it, as the same subject has also engaged the attention of some of our profession; and, again, because considerable fault has been found for the last ten years with us by many in the profession for not rating our charges higher. We never have engaged in the discussion of this subject, nor do we expect to; but to answer all anxious inquirers, we will set forth our views for the purpose of explaining how we have been governed, and how we expect to be, unless the law of the land interpose to direct us, and then, doubtless, we will be found on the right side. We believe, with the writer of the article referred to, that the "regular fee-bills, regulating the charges of ordinary practice; a custom which we have always regarded as absurd and unjust, since it places, in this particular, all practitioners, whatever may be their respective merits, upon the same level; whereas every man should be permitted to charge according to his skill and the nature of his services, not forgetting the circumstances of his patients." If patients complain among each other about the difference between the charges of different dentists, it has nothing to do with the subject between dentists. We would not be willing to be governed in our practice by what any dentist should consider a fair equivalent for *his own services*, or what any patient should think was sufficient, whether it was more or less than we, and our patients who preferred us, choose to agree upon. We have always said, when complaint has been made, that if we cannot operate for a patient *at all*, and he is obliged to pay another, whom he places confidence in, three times as much, it is none of our business; the patient has no right to cite us as a standard, or bring another down to our charges, no matter how low they are.

If old dentists choose to limit their practice and make high charges, and those whom they have served long and well can afford to employ them at such rates, and who know their services are valuable and successful, and they make that known to their patients before the operations are performed, no one has any cause to complain; nor does any other dentist, young or old, lower the dignity of his profession by operating for a smaller fee. But we do not hold to the doctrine that a dentist who has raised the value of his operations in his own estimation, or rates his charges justly above the mass, or his usual rates with which his patients are familiar, has a right to make his claim what he pleases after the

operations are finished; a patient has a right to judge whether he can pay an increase of charge or not. We know that there has been a great deal of complaint by patients on this part of the subject, and justly too; and instead of the dentists raising the dignity of the profession by it, they do a great deal to lower it. No one can hope to raise the dignity of his profession by any unreasonable things; but he has a right to bargain for whatever he pleases, providing his patient is a party to the bargain. We have many patients in our practice, some who left their former dentists years ago, on account of high charges, and they pay us more at present than they paid the dentists whom they left.

It is simply impossible for one patient to pay as much as another, the community through, for dental services—and we regard it as a morbid idea for a young man, or even an old one, to be all the time lamenting that he is not receiving as much as another dentist or an older one. We are quite sure that it has never given us any trouble, that older or younger men in the profession receive more for their services than we. We know very well that an intelligent patient of ours paid fifteen dollars to a dentist for plugging a tooth which we had not time to do; while we had never charged more than five dollars for similar operations; and neither of us lost any reputation. The more free the matter of charge is left between the dentist and the community, without the restrictions of fee-bills, the better it will be for all parties. Charges should always be regulated in every dentist's practice according to the community he lives in, so as to be pleasant and agreeable on both sides. If not, the war between them will keep him in trouble all the time. If there is no other and nobler feeling holding together a professional man and his practice than pecuniary interest, it is a very cold and unworthy connection.

We received a letter a short time since from a respectable member of the profession, in our city, on the subject of charges for our operations in plugging, which we did not answer, as we had long since intended to make an article on the subject, which would answer his case—as it was not new to us, and many would be answered instead of one. He remarked that many of his new patients had complained of his charges being higher than ours; that we had operated for their relatives and friends for two dollars a plug; but he had contradicted it—and was he right?—as he wished to charge, although young in the profession, so as not to lower its dignity. We will answer here that he was not right in contradicting it; we doubtless operate for relatives and friends of the patients of many dentists for two dollars, and always expect to do so as long as we have fingers and health to work; we operate for many such, and we do not intend to cut them off. Many of them cannot afford to pay more; but, doubtless, many can; but they have struggled upward through life like ourselves, with small means, as patients of ours and as

friends, and they shall stay with us so long as God gives us life, if it is their pleasure so to do, no matter what rate of charge we shall make from time to time upon the mass. Nor do we believe that they should be taken as a rule to govern others by—either patients or dentists—nor will we ever interpose between patients and dentist, to regulate their charge.

J. D. W.

PROFESSIONAL DISCUSSIONS.

WITHIN the last few months, actuated by no other motive than an earnest desire for the establishment of truth, and to discharge that duty which every practitioner owes to the profession, we have been impelled to take exception to certain modes of practice advocated, that our experience has taught us to be objectionable. In doing this, our views, it is true, have been expressed in a very decided manner; if too much so to meet the approbation of those with whom we differ, the fault must be attributed to convictions of their truth.

The course pursued in offering our objections has been to confine the line of argument exclusively to the subject under consideration, presenting the experience gained, describing experiments performed, and accounting for phenomena observed. Though in responding to the facts presented, a different course has been adopted than we anticipated from such quarters, we feel no disposition to take exceptions to those efforts, or future ones of similar character. Prosecuted, however, as our labors in this direction are, after discharging the daily round of professional duties, we value the time thus appropriated too highly to spend it in the preparation of would-be-witty communications. We have an opportunity each week of enjoying, and keenly relish, the witticisms and caricatures of "PUNCH," but feel no disposition to emulate him in our contributions to a magazine devoted to the interests of science. If tempted to adopt such a course, we should fear our readers might either conceive that we had exhausted our arguments, or felt the weakness of our position. Another reason that would prevent our adopting such a course, is the apprehension that it might interrupt the courteous and pleasant relations which should exist between gentlemen and brethren.

There is no reason why theories and modes of practice should not admit of the freest and broadest discussion in our societies and magazines without exciting the slightest feeling of animosity, as long as it is confined to the subjects alone, but the moment that a different course is adopted there is danger (as too many instances that might be cited would prove) of its degenerating into personalities, and thus retard the progress of science.

Bishop Hall remarks: "Truth and error, as they are essentially oppo-

site in their nature, so the causes to which they are indebted for their perpetuity and triumph are not less so. Whatever retards a spirit of inquiry, is favorable to error, whatever promotes it, to truth. But nothing, it will be acknowledged, has a greater tendency to obstruct the exercise of free inquiry than the spirit and feeling of a party. Let a doctrine, however erroneous, become a party distinction, and it is at once intrenched in interests and attachments which make it extremely difficult for the most powerful artillery of reason to dislodge it."

With the broadest sympathies for his professional brethren in general, and the deepest interest in the efforts of the weakest as well as the strongest laborer in the advancement of the science, uncontrolled by his friendships or actuated by enmity, seeking truth rather than desiring to maintain a preconceived theory, there is no reason why one should hesitate, when impelled to do so by conscientious convictions, to take exceptions to any theory or mode of practice that observation and experience has taught him to be open to decided objections.

Fully recognizing our own fallibility, we shall always feel indebted to those who, actuated by such a spirit, shall correct our erroneous views. For we have ever felt that he who adds to our knowledge is entitled to our respect and regard, while he who, perceiving our errors, encourages them by open approval or silence, merits our hearty contempt.

In conclusion, we have so frequently heard the remark that "fang filling is such a difficult operation, absorbs so much time and material, and is not at all remunerative," that when we found a plan of treatment suggested by which all this could be obviated, it very naturally prompted the queries proposed. They were advanced, however, to elicit information, not to impugn the motives of others; if the latter construction is placed upon them, however much we may regret it, that is no fault of ours. In reply to the queries addressed to us, we would say, in the constant round of practice even the *conscientious* practitioner, whose time is fully occupied, is frequently compelled to act in opposition to his convictions and judgment when called upon to serve those who cannot or will not pay, even a moderate charge, for the operations demanded in cases such as those under consideration. If, under such circumstances, after having the matter stated fully and clearly, the patient declines the necessary operations, and insists upon extraction, we cannot see that there is any evidence of a "sacrifice of manhood" on the part of the operator in complying.

J. H. M'Q.

OUR friend Dr. Wm. M. Wright, of Pittsburg, who has been engaged in the practice of dentistry for the last twenty years, called upon us last month, (October,) and stated that he was on his way to London, with the intention of locating there for at least one year, if not permanently.

Trusting that he may meet with the encouragement he justly merits, we would bespeak for him, on the part of our professional brethren in England, the reception due to a gentleman and a thorough practitioner.

J. H. M'Q.

REVIEW OF DENTAL LITERATURE AND ART.

BY J. H. M'QUILLEN, D.D.S.

DENTAL REVIEW, LONDON—SEPTEMBER.

ON DIET AND MODES OF LIFE IN THEIR INFLUENCE ON THE ORGANS OF MASTICATION, by DR. RICHARDSON.—It is an unquestionable fact, as Dr. R. remarks in the following extracts, that an insufficient supply or a defective quality of food taken by the mother during gestation and lactation, and the subsequent improper feeding of children, are prolific causes of an imperfect development of the teeth. An unusual drain or waste in the system—such, for instance, as that made by the fœtus in utero, or in the daily supply of milk, which constitutes the sole support of the offspring at a later period—makes it necessary that the mother should not only be furnished with a sufficiency of wholesome food, rich in the materials inservient to repair the waste in her own system, but also to meet the demands for the development and growth of the new organism. As there can be no doubt that the development of particular parts is dependent upon the character of the food supplied, it becomes an interesting point to ascertain what articles of diet are calculated to promote the most perfect development of any special tissue or organ.

Investigations such as these have been followed by the most favorable results in the vegetable kingdom. Plants growing originally in poor, dry soils, on being transferred to one of an opposite nature, have manifested a luxuriance of growth and productiveness quite in contrast to their original condition; and the liberal use of nitrogenized manure, containing a large proportion of earthy phosphates, induces a marked increase in the production of the cereals. Advancing to the animal kingdom, the use of oleaginous and farinaceous substances—or, as they are named, the non-nitrogenous articles of food—increases the deposition of fat; the administration of iron promotes the formation of blood-corpuscles; and it is asserted by some writers, though denied by others, that the use of the phosphate of lime in rickets is followed by decided benefit. Be this as it may, there can be no doubt that the integrity of the teeth and bones are materially modified by diet.

The solidity and strength of the bones, and the hardness (upon which their utility depends) of the teeth, is due to the presence of the phosphate of lime or bone earth, one of the most important of all the solid inorganic

constituents of the human body. In healthy bones the proportion of this salt averages about 59 per cent., in dentine 66 per cent., and enamel 90 per cent. Entering so largely into the composition of these tissues, it is highly important that a sufficient quantity should be introduced into the system originally, for the growth of these tissues, and eventually to repair the waste that occurs in accordance with the law controlling every part of the organism. When this does not take place, the bones are found preternaturally soft and pliant, and the teeth imperfectly developed in the young; and even during adult life, after the osseous frame-work has been fully formed, softening of the bones and teeth is not an unfrequent occurrence. For instance, during pregnancy the demand for this material by the fœtus is so great that it is frequently furnished at the expense of the mother; and fractures occurring under such circumstances unite, if at all, with very great difficulty. The urine, which usually holds a quantity of the phosphate of lime, in this condition hardly contains a trace. In the pathological condition known as *mollities ossium*, the skeleton, originally perfect in composition, parts with its earthy constituents, and becomes soft and pliant. Similar changes in the dental organs are frequently presented to the dentist; teeth originally dense in structure, on the establishment of certain diseases, in which the powers of the system are seriously impaired, as with females after parturition, soften and crumble away in a rapid manner. In illustration of the effects of diet in modifying the structure of the osseous system, Chosat found, by actual experiment, that an artificial softening of bones can be induced by restricting animals to food containing little or no phosphate of lime. Facts such as these indicate that, to properly develop and nourish the dental and osseous tissues, those articles of food that contain the greatest quantity of this salt should constitute a large proportion of the diet of parturient females and children. The nitrogenous articles of diet will be found the most reliable for this purpose, and the amount of the phosphate of lime contained in some of them is much greater than one would at first suppose, being not only present to a large extent in the cereal grains—as corn, wheat, rye, and barley, the curd of milk—but also in meat.

Though inclined to agree with the writer in the views advanced relative to the injurious effects following the use of sugar, resulting not so much from the employment of the article, as the retention in the mouth and subsequent generation of acid, we must admit that the position is an open question, as it is asserted on excellent authority that the negroes on the sugar plantations of Louisiana and the West Indies, during the cane season, drink freely of the juice, and eat liberally of the sugar, constituting in fact a large proportion of their diet during that period, and yet the beauty and soundness of their teeth is a subject of frequent comment.

Of the effects of hot and cold fluids upon the teeth, our friend Dr. J. Foster Flagg instituted a series of experiments, (which we repeated,) two

or three years back, that convinced us that the opinions generally entertained of the pernicious results ensuing to the dental organs from the variations of temperature to which they are subjected under such circumstances are fallacious. A number of teeth were placed in water, and heat applied until the boiling point was attained, when they were removed and thrown at once into ice water. This experiment was repeated several times; on two occasions reversing the course pursued. Notwithstanding the severe test that the teeth were subjected to in passing from a temperature of 212° to 32° , there was no evidence to the naked eye, or with the assistance of the microscope, that the enamel had sustained any injury.

"In considering the influences of habits and modes of life on the dental organs, we must begin with the fact clearly before us, that these act in two ways, systemically, *i.e.*, through the system, and locally, that is, by direct effect on the teeth themselves. I dwell on this simple fact, because we have seen in late discussions that eminent dental authorities have been ranged into two parties, the one contending for the pure local cause, the other for the pure constitutional cause.

"The truth seems to me to lie in the mean, and what is more, I conceive that many cases occur in which both local and constitutional causes are acting at one and the same time. I see this fact often illustrated in ill-fed or improperly-fed children. A child, born perchance with an enfeebled build, is pampered with materials for its daily wants which are dictated only by caprice, and given for the sake of idleness or desire for quiet on the part of the parent. Such child, treated with acid fruits, and provided with sustenance which cannot support its growth and development, is directly subjected to both sets of destroying evils. The teeth improperly nourished by blood at a time when they require such nourishment most, are being subjected to external agents which exert a direct chemical effect, and under the combined causes the teeth of necessity become destroyed. We shall see as we progress, that in adult life the same influences, in their combined form, are sustained. * * * *

"The effects of foods and drinks on the dental organs act differently at different periods of life. In the first days of infancy the effects of food must of necessity act solely through the system, and when we remember the simple truth that in their primary stages the teeth are composed of soft and exceedingly vascular structure, that they are modifications of mucous membrane, and that their osseous structure is built out of matter the nutrition of which is long active and easily perverted, we have no difficulty in seeing that the supply of innutritious food must be a leading constitutional cause of imperfect dental development.

"The errors in diet which lead to disease manifestation consist chiefly in the use of foods in which the earthy and the nitrogenous elements are deficient. Such foods, for instance, as rice, arrowroot, gruels, and messes made out of dried husks of bread. Upon these foods the infant starves, and the teeth, for the support of which materials so entirely different are required, starve most.

"Among the children of the poor, again, a deficiency of health in the mother is the cause of similar degeneration in the dental nutrition. The mother, enfeebled herself by subsisting on the bare provender I have noted, cannot in human possibility secrete from the breast materials in

which her own system is deficient. Hence the breast-milk fails in its nutrient office, and the infant body fails per sequence.

"In cases of an opposite kind, over-feeding leads to similar consequences. In these cases the body does not possibly become emaciated, but the digestion is impaired, the salival secretion takes on an acid reaction, and the teeth suffer as a consequence. Such children are subjected to excoriations of mucous membrane and to aphthæ; the breath becomes offensive, and the teeth are shelled at a period when, according to the ordinary course of nature, they would be most fully developed.

"But if the use of improper food in the earliest days of infancy does injury to the temporary teeth, producing in them a premature decay, the effect is infinitely more serious, as it is made to extend to the permanent set. It is always a critical point in the management of infants, when the natural maternal food is being changed for the food which is to take the place of the mother's milk. The place of this nitrogenous, fatty, and saline food is too often filled up by a dietary in which only one of these elements is prominently supplied, and the result is, as before, a depraved nutrition generally, with special deprivation of the necessary elements for the dental structures. The permanent teeth are as a result delicately formed, and in after life, with the enamel imperfect and the dentine imperfect, they are susceptible to external agencies which, on firmly-built organs, would exert no mischief whatever.

"The effects of foods and drinks on the teeth in adult life have been variously classified. Some have assumed that the teeth are externally so protected that caries from external causes is next to impossible. Others have argued that from the permanent character of the dental organs, and from the fact that the permanent teeth are scarcely to be influenced by the introduction of agents into the system, (madder for instance,) the idea of a general effect through the system is unsupportable. It appears to me that the common-sense view in this matter is that the agency of food in the well-developed adult tooth is mainly external and chemical. What, then, are the influences of food? Do alkaline foods exert any effect? Do acid foods exert any effect? Do condiments exert any effect? Do foods of different temperatures exert any effect? Lastly, do foods exert any direct influence? Let us discuss these points seriatim. * * *

"In perfect health, I take it, then, that the acid foods ordinarily taken in the diet are counteracted by rapid removal and rapid neutralization; but in many states of disordered health the salival secretion loses its alkaline protective power, and even assumes an acid reaction, so marked as to be distinguishable to litmus. The same acidity occasionally, I believe, attends the secretion of the buccal glands, or the mucous fluid which is secreted from the solitary glands in the mouth. I have myself known the saliva thus acidified in various diseases of the dyspeptic type. In those instances where little ulcerous points appear in the mucous membrane, the salival has often a marked and prolonged acid reaction.

"In dyspepsia accompanied with a great increase of fat in the body, there is frequent acidity. In the aphthous rash of children there is frequent if not constant acidity, and so on. Some authors have gone so far as to show that certain special diseases are attended by certain special acid secretions. It is unnecessary for us to enter into these minutiae; suffice it to know that an acid condition may exist, and that so markedly, that the patient shall himself know of it by the sensation of acidity, and the litmus-paper tell of it by turning red.

"Now, when this condition of saliva is present, there is as a consequence an active agent constantly at work on the teeth; while whatever acid foods are taken, or whatever foods are taken which in the mouth produce acid by retention and decomposition, have at once an unlimited play, and must and will affect the teeth by direct chemical action.

"To recall what has been said, and to recapitulate,—the facts are (a.) that the acids of foods have a destructive effect on the enamel of teeth. (b.) That ordinarily the effects of acid foods are neutralized by the saliva. (c.) That the normal reaction of the saliva being lost, acid foods and drinks have the means of producing decided and injurious mischief on the dental organs by the chemical dissolution of the enamel.

"The influence of putrefying animal matters on the teeth has been differently estimated. It has been urged against the idea that putrefying portions of food are a cause of decay, that a tooth removed from the body may be buried in putrefying animal or vegetable matter and undergo no change after the lapse of months. A better argument in favor of this objection would be, that in the dissolution of putrefaction which follows death the teeth take no share; that in the closed vault or grave, themselves enveloped in all the compounds of decomposition, the teeth remain, and are to be found when the softer parts have been removed in all their entirety.

"But these arguments are each open to fallacy; for it is certain that putrefying substances left between the teeth may undergo, under some conditions, an acid decomposition; thus decomposed they necessarily act as acids, and destroy. This mode of decomposition is, however, contrary to the general rule, and exceptional; the rule being that the products of all organic decompositions are alkaline. I would suggest that much of the discrepancy between practical observers, as to the effects of decomposing matters on the teeth, is based on the non-observance of the method of decomposition. If an alkaline decomposition has been met with, the effect is *nil*—if an acid, the converse.

"Even the varieties of food imbedded in the teeth may influence this result. The foods of the saccharine group all tend in their decompositions toward acetous formation; the foods of the nitrogenous group to the formation of alkaline compounds.

"Regarding the special effects of sugars on the teeth, I must express that, in so far as my observations go, they tend all to confirm the common idea that injury follows their frequent indulgence. Such injury is rather the result of a retention of the saccharine matter, and subsequent generation of acid, than the effect of the sugar itself. Curiously enough, that sweet which pleases children most is that which combines acidity with sweetness. The sweetmeat of this nature is crunched between the teeth, the saliva is saturated with it, the said saliva is retained in the mouth a considerable period, and the teeth meantime are exposed to the action of a chemical solvent.

"The effects of hot drinks upon the teeth have been considered by many writers as of an injurious tendency, and as exciting to caries. In the instance of a perfect tooth this theory is open to grave doubt; but it is to be admitted that in instances where the teeth are, by chemical or physical accident, injured, hot fluids are the possible excitants of internal inflammation. In this indirect manner, caries already on its way may be much accelerated; the inner portions of the dental structure giving way and their support, physical and nutritive, being withdrawn.

"The influence of stimulants on the teeth may be viewed as direct or indirect. Directly, the effect of a stimulant, such as brandy, may be considered as not different from that of heated water. If the tooth is sound, the stimulant passes over it harmless; if the tooth is diseased and the dentine is exposed, the stimulant acting as an excitant will produce all the results of an excitant, with sequential inflammation, and the consequences incident to that process.

"Indirectly the influence exerted by the immoderate use of stimulants is more serious. The stimulant leads to dyspepsia, to the gouty diathesis, and to renal disease; from which constitutional maladies the teeth are variously affected,—as by caries, the result of acid salival secretion, or odontalgia, the result of the gout poison.

"The effects of saline foods on the teeth deserve a few moments' notice. We must here seek for evidence from those who have been engaged in the superintendence of men long kept on salt diet. On this evidence, notwithstanding some facts which have yet to be given respecting the teeth of seafaring men, it must be concluded that the gums rather than the teeth are affected by the salted diet; and that in the midst of the most dire symptoms of scurvy arising from salted food, the teeth stand out untouched, or even fall out, without indicating that their hard tissue has undergone destruction.

"To conclude, on the subject of diet and its effects, the facts will be gathered, that, as regards the influence of dietary on the teeth, the carnivorous diet-roll is much less injurious than the herbivorous; a fact which is borne out by the observation of the teeth of different classes of animals, the herbivorous having teeth very prone to decay, the carnivorous having teeth in which decay is rarely if ever presented."

DENTAL REGISTER—OCTOBER.

DENTAL FEES.—Acknowledging the right each operator has to fix his own terms, and satisfied that usually, when charging what are called "low prices," a proper estimate is placed on the intrinsic value of the operations performed, there can be no question that many able practitioners who attempt to perform, at low rates, a greater amount of work than they can do justice to, would not only render a greater service to humanity—impress more decidedly on the mind of the community the advantage, importance, and necessity of dental operations—but would also secure and maintain a higher standard of professional skill by doing less, and that thoroughly. Under such circumstances, they would be justified for charging in proportion to the time and skill employed. In adopting this course, they may possibly enjoy but a limited reputation with the community, but they will secure that which is dearer to the conscientious practitioner, the satisfaction of discharging the duty imposed to the best of their ability, and obtain a recognition and encouragement, on the part of the profession, denied to others. We have frequently heard of practitioners who asserted that they had introduced thirty and forty fillings in one day. Our lamented colleague, Prof. Townsend, whose operations will remain as enduring monuments to his

memory long after his death, remarked, on more than one occasion, "that he considered he had accomplished a good day's work upon filling eight cavities!" At the end of each day's labor, the boast should not be, "I have filled so many teeth," but in its place the query, "how many have my exertions saved from destruction?" With these prefatory remarks, we would direct attention to the following extracts from an able article on this subject, by Dr. B. Wood, of Nashville:—

"It is conceded, by all, that the remuneration for dental services should be such as to command the requisite ability, and to compensate for bestowing all the care, labor, and expense demanded for the successful execution of whatever we undertake. Competent and reliable operators, one would suppose, ought surely to receive *as much* for their *time* and *labor* as those who are not at all, or but illy, qualified to discharge the duties they assume. Nevertheless, it may be safely said, as a general thing, the latter class obtain a larger remuneration for the actual amount of time and material expended, than the former. Their patients, too, pay the tax with cheerfulness, or even gratitude, imperfect or worthless as are the operations, while they would loudly complain if required by the former to pay a like sum for a similar amount of time and labor spent in the bestowment of substantial services.

"I speak, now, of services belonging exclusively to the province of the dentist, and not of those pertaining in common to him and the physician or surgeon—which, it is to be remarked, thanks to the medical profession, the skillful operator generally obtains better pay, for the time occupied, than his unskillful competitor. In such cases, the patient sometimes estimates the 'services' by the amount of labor; as in the case where the regular fee for extraction was thought extortionate, because another had *pulled at* the same tooth ten times as long—dragging him to whom it was *attached* all about the room—and only charged half as much!

"If a proficient operator would consent to plug or insert teeth upon the model of quackery, he could make, at *quack prices*, more than he could in the faithful execution of his task at even the highest rates. This is known but too well by those disposed to yield to popular prejudice, in opposition to the dictates of conscience, preferring to put off inferior work at a reduced price, than to encounter the imputation of 'extortion.' The outward pressure sometimes compels to the adoption of this course as the only alternative to secure business. There are many places where the customary rates (as established by empiricism) are insufficient to enable the practitioner to *learn* to execute well. Custom is, of course, inexorable, and he must remain in *statu quo* or retrograde—most probably the latter.

"We say, no doubt truly, the masses do not appreciate the importance of good operations, nor the skill required in their execution. Yet how often is it that the latter class, sufficiently affluent and intelligent, who know well enough to choose the good and eschew the bad, when they see, unmistakably, a reliable dentist has devoted vastly more time and labor, to say nothing of skill, in a given case, than is customary with pretenders, nevertheless demur at anything like corresponding remuneration. We are frequently consulted in cases of bad fillings, which the patients, conscious of their worthlessness, wish replaced, where it would have been easy to 'stuff' a dozen or more, after the same style, in the

time required to do any one of them perfectly; but should a dentist, in such case, charge twelve times the cost of the original plug, what a commotion would it stir up! Indeed, he is often expected to do the work at 'about the same.' I have been more astonished at the stupidity or audacity evinced in such instances, than in anything else I know of. It is remarkable, that almost universally there appears to be little value attached to the *time* of dentists, compared with the ostensible amount or *number* of operations.

"The evil of such a state of things is apparent—a premium for empiricism and dishonesty—a barrier to progress in the path of excellence."

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"Beyond doubt, quackery, backed by such respectable aid, has exerted a wide-spread influence. But apart from this, there are other things which have, perhaps, equally contributed to the popular misconception and prejudice referred to; and prominent among these I am disposed to reckon the custom of charging by specific operations, rather than according to time occupied, thereby leading to misconception as to the basis of valuation. Thus, in the operation of plugging the teeth, the public have been led to affix a definite value to a plug, variable, 'tis true, according to material used, and according to size. But with them, in any given case, a plug is a plug; and they cant or wont comprehend why they should pay one operator more for the *same thing* than another. They acknowledge, 'tis true, a difference in the execution; and they learn that whereas the fillings of some stand and save the teeth, those of others do not. But they cant understand why it should *cost* much more for the former than for the latter; nay, why, as being less liable to need repair, they might not be afforded for less;—conceiving, at all events, that the increase of business sure to result from superior success ought to be an ample reward.

"That they should not be able to discriminate as to good and bad, even had they a fair inspection, is not strange, seeing that it takes a practical dentist to know a good plug from an indifferent one. Certain it is, some practitioners imagine their own to be very good, until time proves the contrary. It is folly to hope the masses will ever be competent to judge of the comparative excellence of our operations, although they can be taught to form some estimate as to the care and time bestowed upon them."

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AMERICAN JOURNAL OF DENTAL SCIENCE—OCTOBER.

The following is extracted from "Odds and Ends" by Dr. D. P. Gregg.

"TO SHARPEN FILES AND BURR DRILLS.—Great inconvenience as well as loss is sustained by not being convenient to dental depots, in being unable to get good files or drills. Some may prefer making the latter, I would rather others would strain and damage their eyes than mine by manufacturing them. Thousands of files thrown away as useless may be made as valuable as ever with a cost of ten or twenty cents at most, with little or no labor, and consume only twenty minutes in doing it. Take your files and clean them well with brush, warm water and soap; procure some sulphuric acid and put in a vessel of convenient size, say a common glass tumbler, diluting it one-third with water; put in your files, let them remain ten, fifteen, or twenty minutes, which can easily be determined by taking one out and testing its sharpness. The length of time will depend upon the degree of dullness as well as the temperature of the acid. Care

should be taken that none but the cut portion of the instrument be submerged in the liquor. Adopt the same method with your burr drills. I have some files in my possession I use every day, that I purchased six years ago, and I have sharpened them a dozen times. No one need try this who has any doubts about its value. I write for the benefit of those who are willing to learn and adopt any beneficial plan."

ANÆSTHESIA BY COMPRESSION OF THE CAROTIDS.

A physician in Dublin four or five years back recommended compression of the carotid arteries as an easy and efficacious mode of inducing anæsthesia. It was suggested that this plan would be found useful in the performance of surgical operations, particularly in the extraction of teeth. Within the last few months one of the dental journals having referred to the subject, it reminded us of an operation we witnessed, and an experience subsequently gained, of the rapidity with which insensibility can be induced under such circumstances.

The operation alluded to was performed on a young woman seventeen years of age, who had a tumor of considerable size occupying the right side of the face, extending from the nose (the right side of which was much elevated and the nares closed) to the malar bone. Decided pulsation was perceptible when the hand was placed on the tumor. Professors Pancoast and Mütter, who had the case under treatment, agreed in attributing the appearance presented to the presence of a large tumor within the maxillary sinus; they also thought it would be necessary eventually to extirpate the bone, (an operation absolutely demanded and performed at a subsequent period,) but under the circumstances deemed it advisable then merely to ligate the right primitive carotid artery, as they hoped, by cutting off the large supply of arterial blood, to arrest the further development of the tumor. The patient having been placed in a recumbent position, Professor Pancoast cut through the integuments in the surgical region of the right side of the neck, called the middle triangle, down to the sheath containing the carotid artery, internal jugular vein, and the pneumogastric nerve. This sheath having been opened, the artery was raised on a grooved director, and a blunt needle, armed with a ligature, was then slipped under the vessel, and the ligature tied just below the bifurcation, where it divides into the external and internal carotids. The moment the ligature was tightened, syncope ensued like a flash, on account of the large column of blood that was suddenly cut off from the brain. The collateral circulation between the branches of the left carotid and the vertebrals soon established an equilibrium in the vessels, and the patient was restored to consciousness. As already intimated, this operation failed to accomplish the desired end.

The experience referred to was obtained as follows: In the presence of several gentlemen, Dr. John S. Clark, of New Orleans, made an attempt to compress the carotids of one of the gentlemen by pressing upon them with his thumbs, but on account of the superabundance of adipose tissue

in the neck, and the deep-seated position of the vessels, he was unable to succeed. Desiring to investigate the subject, we submitted to the necessary manipulation, and in the course of fifteen seconds (according to the statement of those present) perfect insensibility was induced. The sensation experienced while lapsing into unconsciousness was by no means unpleasant; there was a dreamy listlessness induced, unaccompanied by any feeling of oppression, or the usual phenomena attendant upon the administration of anæsthetic agents, viz., ringing sound in the ears, flashing of light, etc. Immediately upon removing the pressure consciousness was restored.

Recognizing the force of Bichat's remark, that life rests upon a tripod formed by innervation, circulation, and respiration, and that the reciprocal action of these functions is demanded for the maintenance of life, death ensuing upon the cessation of either, we should be unwilling to submit to such an operation again, or subject others to a similar test. Though no disagreeable results ensued from this experiment, we therefore feel by no means warranted in recommending such a practice; but, on the contrary, regard it as open to many and serious objections. For instance, though the brain is supplied with a large quantity of blood through the vertebral arteries, there is a possibility of inducing fatal syncope by arresting, even for a brief period, the current passing through the carotids. Admitting that such results might be exceptional, it cannot be denied that, if practiced to any extent, there would be a great liability, in certain diathesis, of creating marked cerebral disturbance and inducing aneurism of the carotid, arteria innominata, or subclavian arteries, where there is a predisposition to that affection.

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OVAL MOUTH-GLASSES.—One of the most useful adjuncts in the examination of the teeth is a perfectly *clear mouth-glass*; and yet nothing is more unusual than to find one in that condition, after it has been employed for any length of time. Instead of presenting a continuous reflecting surface, it will be generally found that the quicksilver has been rubbed off at different points, giving it a mottled appearance. This is generally due to the use of round mirrors, on wiping which, when dimmed by dust or moisture, the circular shape of the glass admits of its slipping in the pearl or ivory setting, and the friction necessarily removes the mercury. The oval shape, by being more securely set, is not open to this objection, and will maintain its clearness, though in constant use, for years. The condensation of the moisture in the breath of the patient frequently dims the surface of a mirror so much that it is a constant source of annoyance, as no reflection can be obtained. This may be obviated, however, by dipping the mirror into water prior to introducing it in the mouth. The water that remains on the glass prevents the breath from coming in contact with the surface, but does not interfere with the reflection.

PERISCOPE OF MEDICAL AND GENERAL SCIENCE IN THEIR RELATIONS TO DENTISTRY.

BY GEO. J. ZIEGLER, M.D.

On the Structure and Relations of the Nervous System at the Periphery, including the Neurology of the Organs of Special Sense. By JOHN G. S. COGHILL, M.D. In a series of interesting lectures which appear in the Nov. number of the *Lond. Lancet*, Dr. C. gives an outline of, and reviews the present ideas upon this subject, of which the following will afford a somewhat general summary of those most appropriate to this journal:—

“Systematic writers, in treating of the structure of the nervous system, have recognized a division of their subject into *central* and *peripheral* portions: the former comprehending the brain and spinal cord, or the cerebro-spinal axis; the latter extending from the roots or central connections of the cerebral and spinal nerves to the periphery. The latter division, however, includes several highly important structures connected with the distal extremities of the nerve-fibres in certain parts of the periphery. These peripheral nerve-structures differ so essentially in their general character and functions from the other nervous elements as to entitle them to be considered separately, as a distinct division of the general nervous system, more especially as every addition made to our knowledge—which is far from being complete—of the peripheral nerve-structures displays a differentiation of structure so marked and elaborate, and functions so special, as fully to warrant their being thus regarded. In accordance with this view, we shall recognize—1. Central nerve-organs. 2. Intercommunicating nerve-fibres. 3. Peripheral nerve-organs.

“1st. The central organs comprise the cerebro-spinal axis, composed of nerve-cells and commissural nerve-fibres, the relations of which I have already indicated, and these are arranged in distinct groups or ganglia.

“2d. The intercommunicating filaments are the nerve-fibres connecting these central organs with the periphery. They arrange themselves, in virtue of their functions, into afferent and efferent fibres. Along the former are propagated those movements which end in sensation, general or special; and along the latter the impulses of the will, ending in muscular motion, simple or co-ordinated. There is no anatomical difference capable of being distinguished existing between them; and the researches of Du Bois Raymond and others render it probable that the nervous force or current may be transmitted either way along the same nerve-filament, according to the point at which it is initiated. This force, whatever it may be, is identical in both cases; the result depends entirely on the central or peripheral connections of the fibre.

“3d. The peripheral nerve-organs include the special structures which are, in certain parts of the periphery, attached to the distal extremities of sensory nerve-fibres; but as Goodsir, by a beautiful generalization, perfectly in accordance with our knowledge of the subject, points out, all organs and tissues in which nerves are distributed and terminate must be regarded as peripheral nerve-organs, inasmuch as they are capable of impressing or influencing them, or of being impressed or influenced through their agency. All afferent or sensory nerves are connected by the peri-

pheral extremities of their fibres with peculiar structures, of various degrees of complexity as regards their form and arrangement, by means of which structures the forces or impressions which the fibres convey to the nervous centres originate or are initiated. These afferent fibres, as I have already said, are in no way different from the efferent, except in so far as their central and peripheral relations are concerned. The afferent, or incident nerves, as they have been also called, only receive and convey impressions varying according to the nature of their peripheral connections, in which the said impressions originate, on the application of the appropriate stimuli. It is the distal extremity of the nerve-fibre alone that is capable of being thus impressed; the nerve-fibres are not in themselves endowed with the property of sensibility. All stimuli, therefore, and irritations applied to the nerve in any part of its course, produce sensations the origin of which is invariably referred to the peripheral terminations of its fibres. This is not only true as regards the nerves of special sensibility, such as the optic and auditory nerves, and the nerves of the skin subserving the sense of touch; but it is also true with respect to the distal terminations of the sensory nerve-filaments in muscles, glands, and other parts, for they can only convey information, so to speak, to the sensorium, with respect to the state of the structures in which they are distributed, in virtue of the connection of the ultimate elements of the nerves, and the tissues of the part or organ in which they terminate. Every texture and every organ has the power of transmitting, through the afferent nerves, an account of its condition to the brain, in addition to the power which the latter possesses of influencing or controlling the peripheral organ through its efferent nerve-fibres. In this way every muscle and every gland, and, indeed, every texture, must be regarded, to this extent at least, as a peripheral nerve organ, *quoad* the incident nerves terminating in it. And it also stands in this relation to its efferent, or motor nerve-fibres, for the force or impulse initiated at the nervous centre by the will can only take effect—that is, can only be communicated to the muscle, in virtue of the connection subsisting between the distal extremities of the nerve-fibres and the muscular tissue; the nerve-fibres may traverse a muscle without being related to it incidentally or motionally, unless terminating in its tissue. Inasmuch, then, as every structure in the body in which nerves terminate has, to a greater or less degree, the power of influencing or being influenced by them, we must consider the former as standing in the relation of peripheral nerve-organs to the nerves distributed in them. From these observations it is evident that an intimate acquaintance with the peripheral connections of the nervous system is highly interesting, as well as important, in relation to the study of the phenomena and laws of nervous action—a subject of which our knowledge is still comparatively limited.”

In another part of the series Dr. C. opposes the view that the peripheral extremities of the nerves terminate in loops, but maintains that, on the contrary, they generally issue in branching of the primitive fibres toward their distal terminations. He, however, qualifies this opinion by the following general statement: “Every examination of the textures or organs concerned, with the most careful consideration of the extensive though often conflicting and apparently irreconcilable observations which I have so frequently detailed, drive us from the supposition of the prevalence of any one universal type in the mode of the ultimate nerve-terminations at the periphery.” He furthermore observes: “Indeed, it may almost now

be asserted, that in no part of the body is a true termination of the nerve-filaments in loops met with—except, perhaps, in the iris and ciliary ligament, where Ruiter has recently, in confirmation of the original observations of Valentin, described loopings in connection with a plexiform arrangement of the nerve-filaments. In the case of the nerve-fibres in the tooth-pulp, as described by Valentin, Gerlach, and others, and which were always regarded as furnishing an undoubted example of the loop-endings, recent observations show that their supposed invariable occurrence even here admits of doubt."

Among other facts and authorities adduced in support of his views, he states that "Wagner has also seen in man, and in certain of the lower animals, such as the calf, subdivisions of the nerve-fibres in the tongue, in the form of tufts, to such an extent as to render it difficult to trace the fibrils to their ultimate termination. Similar appearances have been also observed by him in some of the glands, such as the parotid and lachrymal, and he states that they occur, though rarely, in the nerve-tubules in the pulp of the teeth."

"Respecting the ultimate disposition of the cutaneous nerve-filaments," he says, "I am probably correct in asserting—1st. That although, in some few instances, they have been seen apparently to form terminal loops at the periphery, this is to be regarded as an exceptional occurrence; indeed, it is more likely that these loops are merely an arrangement assumed by the fibres beyond the terminal plexus certainly, but that their ultimate terminations are to be sought for still farther toward the periphery. 2d. That the general, if not universal, mode of termination is in free ends: by which is meant not an abrupt, isolated, or unaltered extremity, but that the end of the nerve-filament holds certain structural relations which are apparently of two kinds. (a) They terminate in certain regions in the Paccinian corpuscles, and in or upon the touch-corpuscles in the papillæ in portions of the integument where the sense of touch is developed: and (b) where such structures do not exist, the distal extremities of the filaments pass into, and become continuous with, the structural elements of the skin; and this is not only analogous to what exists elsewhere, as in the muscular tissue, but may be readily observed. They have been described long ago as losing their characteristic microscopic form, and becoming so altered otherwise as to prevent their being traced farther, even by those observers who were satisfied with following the fibres only to their looped arrangement after leaving the terminal plexus. This fusion of the cutaneous and nervous tissues is most consistent in a physiological point of view with the extreme delicacy and superficiality, so to speak, of the sensibility possessed by the common integument of the body."

Neuralgia.—In the *Am. Med. Monthly* for Nov., DR. GERARD VAN ARCHEN, of Bogota, New Granada, gives some interesting "Notes on Diseases of the Tropics," from which we extract the following:—

"I have to mention a peculiar kind of neuralgia, occurring only in people who have worked for years in tobacco factories, besides being habitual smokers. In these, the body becomes so thoroughly saturated with nicotine, that occasional twitching of the muscles of the face occurs, which ultimately becomes an agonizing pain, making the patient scream in horror.

"I found numerous instances of this disease in Santa Domingo, San

Salvador, and Ambalema, all tobacco countries; they offer the additional interest, that all that class of medicines called antispasmodics and narcotics, have no curative effect over it; on the contrary, they nearly always aggravate the pain. The following formula is almost a specific against it:—

R.—Sulphatis quiniæ, grs. viij;
Pulveris cinchonæ;
Ferri carbonatis, āā. ʒj.

M. Divide in four powders. S. One every six hours.

After the most urgent symptoms have been relieved, I give, three times daily, thirty drops of the tincture of tartrate of iron in about a tablespoonful of some generous wine. This, and a change of occupation, is sufficient to effect a cure in about six weeks.

“Semi-rheumatic pains occur sometimes along the course of the sciatic nerve, and also in the lower jaw. It may be that they are produced by the same cause, although the same remedy does not influence it at all. I am in the habit of prescribing the following for it:—

R.—Vini radice colchici, fʒj;
Tincturæ opii, fʒj;
Extracti aconiti, ʒj;
Iodid. potassii, ʒij. M.

Of this I give thirty drops three or four times daily; and if the pain be superficial, I have the entire painful parts lightly painted by it, repeating the application every morning and evening.”

“*On Traumatic Lesions of Nerves.* By Professor LARREY. (Moniteur des Hôpitaux, 1859, No. 30.)—In his clinical lectures, M. H. Larrey indicates that wounds of the nerves may give rise to three orders of phenomena. 1. Traumatic paralysis of motion and sensation, whether complete or incomplete, and which may disappear at the end of a certain time, or may remain persistent for an indefinite period, atrophy of the parts being then one of the results. 2. Neuralgias, whether immediate or consecutive, intermittent or continuous, these frequently being exceedingly obstinate. 3. In some rare cases, a true neuropathy is produced, *i.e.* general nervous accidents of various forms, among which are sometimes observed convulsions of a completely epileptiform character. M. Larrey, relying upon the incontestable proposition that traumatism produces very marked nervous phenomena, which are evidently influenced by the lesion or the cicatrice, does not hesitate admitting a *traumatic epilepsy*. He quotes two cases. A soldier having had the lower extremity of the radius fractured by a ball, was seized, some months after the complete healing of the wound, with well-marked epileptic paroxysms, a distinct aura proceeding from the thumb and the cicatrice. In another case, a soldier, aged twenty-six, of robust constitution, was struck in the haunch by a shell, and hospital gangrene following, the wound required five months to heal, leaving a large, irregular cicatrice, attended with but little pain. In this man, well-marked epilepsy became developed about a twelvemonth after the accident, although prior to this he had not manifested the slightest disposition to it.”—*Brit. and For. Med.-Chir. Review.*

Stomatorrhœa Vicarious to the Menses.—DR. WOOD made the following statement: "During my last term of service in the Pennsylvania Hospital, a case of stomatorrhœa occurred, which appears to me worthy of notice. The patient was a woman, of about twenty-five years of age, in other respects apparently in good health. She had for three months been affected with a very profuse and disagreeable discharge from the mouth, which she herself supposed to proceed from the stomach. I soon, however, convinced myself that the liquid discharged was a mixture of saliva and a mucoid secretion from the lining membrane of the mouth and fauces. It was nearly colorless, somewhat viscid, and of an unpleasant odor and taste, and appeared to be constantly flowing. As there was evidence of some inflammation of the mucous membrane, I considered the case one of simple chronic stomatitis, and treated it accordingly, both by general and local remedies for a considerable time, but without the slightest advantage. My attention having at length been directed to the menstrual function, I found that it had been arrested about the same time with the occurrence of the discharge from the mouth. Thinking that the two affections might be connected, I put the patient on the use of aloes and the pill of carbonate of iron, with the hot hip-bath daily, which apparently had the effect of restoring menstruation, after which, the affection of the mouth ceased immediately. This case may prove useful, if in no other way, by inducing an early inquiry into the state of the menstrual function under similar circumstances."—*Extract from Pro. Col. Phy., Phila. Am. Jour. Med. Sci.*

Facial Paralysis.—*Abst. from Pro. of N. Y. State Med. Soc., by D. F. C., Am. Jour. Med. Sci.*—A most interesting case of facial paralysis is related by DR. CHARLES G. BACON, of Oswego. The paralysis occurred first on the left side, and was caused probably by irritation of the facial or seventh nerve, by the eruption of the dens sapientia of the upper maxilla of the same side, and exposure to cold. The swollen gum was freely excised, mustard pediluvia were employed, active catharsis procured, and the camphorated liniment with tincture of opium applied to the mastoid region, and the angle of the jaw, and subsequently electro-magnetism to the same region was resorted to, followed by a blister to the mastoid region, the denuded surface produced by it being sprinkled twice a day for two days, with one-eighth of a grain of strychnine, and then a few doses (fifteen drops) of a solution of three grains of strychnine in 3j of alcohol, were taken. At the end of some seventeen months the paralysis had entirely disappeared. For about ten months the patient enjoyed uninterrupted good health, when he was again attacked with facial palsy of the right side. The gum of this side was swollen. A treatment somewhat similar to that pursued in the first attack was directed. At the period when the report was drawn up, about four weeks from the date of the second attack, the paralysis was lessened in extent, and the general health of the patient was good. The gum was less swollen but the tooth had not yet made its appearance."

Cements.—The following highly valuable recipes are from the memorandum book of an experienced member of the craft to whom our sincere thanks and those of our readers are due. They are to be continued in our next.

"Cement for Cracks in Wood.—Make a paste of slacked lime one part, rye-meal two parts, linseed oil q. s. Or, dissolve one part of glue in sixteen parts of water, and when almost cool, stir in sawdust and prep. chalk q. s. Or, oil-varnish thickened with a mixture of equal parts of white-lead, red-lead, litharge, and chalk.

"Cement for Joining Metals and Wood.—Melt rosin, and stir in calcined plaster until reduced to a paste, to which add boiled oil q. s., to bring it to the consistence of honey; apply warm. Or, melt rosin 180 parts, and stir in burnt umber 30, calcined plaster 15, and boiled oil 8 parts.

"Impervious Cement for Apparatus, Corks, etc.—Zinc-white rubbed up with copal varnish to fill up the indentures; when dry, to be covered with the same mass, somewhat thinner, and lastly, with copal varnish alone.

"Cement for Fastening Brass to Glass Vessels.—Melt rosin 150 parts, wax 30, and add burnt ochre 30, and calcined plaster 2 parts. Apply warm.

"Cement for Fastening Blades, Files, etc.—Shellac two parts, prepared chalk one, powdered and mixed. The opening for the blade is filled with this powder, the lower end of the iron heated and pressed in.

"Cement for Iron Tubes, Boilers, etc.—Finely powdered iron 66 parts, sal-ammoniac one part, water q. s., to form into paste.

"Cement for Ivory, Mother of Pearl, etc.—Dissolve one part of isinglass and two of white glue in 30 of water; strain and evaporate to six parts. Add one-thirtieth part of gum mastich, dissolved in half a part of alcohol, and one part of white zinc. When required for use, warm and shake up.

"Transparent Cement for Glass.—Dissolve one part of india-rubber in 64 of chloroform, then add gum mastich in powder, 16 to 24 parts, and digest for two days, with frequent shaking. Apply with a camel's-hair brush.

"Liquid Glues.—Dissolve 33 parts of best (Buffalo) glue on the steam-bath in a porcelain vessel, in 36 parts of water. Then add gradually, stirring constantly, three parts of aqua fortis, or q. s. to prevent the glue from hardening when cool. Or, dissolve one part of powd. alum in 120 of water, add 120 parts of glue, 10 of acetic acid and 40 of alcohol, and digest."—*Am. Druggists' Circular.*

"Solid Perchloride of Iron as a Styptic.—In a recent communication to the *Med. Times and Gaz.*, Mr. J. Z. LAWRENCE called attention to the powerful local styptic properties of the solid perchloride of iron. In the same journal of August 27th, he proposes a superior method of employing it. 'If the solid perchloride of iron be kept in a bottle, a small portion of it, after a time, deliquesces into a thick brown fluid, which is kept in a constant state of supersaturation by the undeliquesced portions of salt. This liquid, applied by means of a spun-glass brush to a bleeding surface, arrests the bleeding almost instantaneously.' Mr. L. recommends this method of application especially in excision of the tonsils, bleeding from the deeper seated gums, etc. He has never known inflammatory action to follow the use of the solid perchloride."—*The Druggist.*

Preparation of Aluminum. By M. CERBELLI.—One hundred grammes of clay, which have been purified by irrigation of all foreign matter, are treated with 600 grammes of strong sulphuric acid, or very concentrated hydrochloric acid. The mixture thus obtained is calcined in a crucible at about 450° or 500° centigrade, then added to 200 grammes of anhydrous pulverized prussiate of potassa and 150 grammes of sea salt. It is then again calcined at a red white heat. After cooling, says the author, aluminum is found at the bottom of the crucible. It is possible that in this reaction there is formed an alloy of iron and aluminum.”—*Jour. de Chim. Med., and Druggist.*

“*Notes upon the variable Quantities of Electricity necessary to excite the Properties of the various Tissues.*—Abstract from *Translations of the Society of Biology*, by DR. MACK. *New York Monthly Review* and *Buffalo Medical Journal*.—M. CL. BERNARD, serving himself with the instrument contrived by M. Jules Regnault for the estimation of the quantity of electricity employed in his experiments, has shown that a more energetic current is required to make the salivary gland produce its usual secretion by the irritation of the chorda tympani, than is required to cause contraction of a muscle by the irritation of the facial nerves. He has also shown this fact: that, to produce contraction of the pupils or the blood-vessels by irritating the cervical twig of the great sympathetic, a much greater quantity of electricity is required than to excite a nerve of animal life. The vital properties of the motor nerves require a difference of quantity of electricity from the muscles, for their excitation; that exciting the trunks determines contractions more readily than excitement of the muscles themselves. A difference of excitability, also, is perceptible between a motor and a sensitive nerve.

“It would appear that the nerve of Wusberg is not, as generally received, a sensitive root, constituting, with the facial nerve, a complete nervous pair, but is very probably a radicle of the great sympathetic, with which it appears to partake in the influence upon the glandular secretions. It is also apparent that the submaxillary glands of each side receive sympathetic nerves from two sources—the one accompanying the nerve of taste, and furnished by the cord of the tympanum; the others ascending from the intra-abdominal ganglia and plexuses toward the superior cervical ganglion, to terminate in the glands; that the filaments emanating from the chorda tympani act in a centrifugal sense, in the manner of the motor nerves; and that, under the influence of their section, the salivary secretion is interrupted.”

“*Case of Chromidrosis.*—By Dr. MAKER, of Colmar. CASE.—Maria V., of Wettolnheim, near Colmar, aged 19, a blonde, having a white skin, and always delicate in constitution. She began to menstruate at 13, but menstruation was never established regularly. Three years ago she suffered for several months from amenorrhœa. Twice, in 1855, her face exhibited for some weeks a decidedly bluish color. This bluish color returned in March, 1858, and became more and more marked until the time when Dr. Maker saw her, (26th September, 1858,) when, at first sight, her face, neck, arms, and hands seemed all over bruises. The color, which was deepest about the eyes, was of a full indigo blue. On rubbing the skin with an oiled linen cloth, the blueness might be completely wiped away, and the skin restored to its natural condition. On

examining with a lens, the coloring matter was seen as a fine dust deposited in the cutaneous crevices. The color became much deeper during exercise, or under the warm rays of the sun; it was also somewhat deeper in the morning than at a later period of the day. Occasionally, also, the saliva had a decided bluish tint. As to the rest, the patient was dyspeptic and anæmic, and for some time she had suffered from profuse leucorrhœa. An analysis of the coloring matter showed that it was analagous, if not identical with indigo."—(*Gaz. des Hôpitaux*, Nov. 6, 1858.)—*Half-Yearly Abstract of Med. Science.*

"*Wisconsin Bones.*—PROF. J. D. WHITNEY exhibited to the Association for the Advancement of Science, fossil bones and teeth found in the Northwest, in the lead region. In the cap rock, as it is called by the miners, there are fissures and cavities from 50 to 100 feet beneath the surface. These cavities are usually lined with lead ore. In them are found the teeth of the mastodon; also of the buffalo. The teeth were in a good state of preservation. They are found in many localities. He believed that this part of the country never was subject to the drift, as no boulders were to be found. Beneath the surface, to the depth of 50 feet, vegetable formations are found. The legitimate conclusions were, that this was the home of the mastodons, and that they existed immediately prior to the advent of man."—*Scientific American.*

"*Researches on the Diseases among the Laborers in the Mercury Mines of Idria.*—DR. J. HERMANN, of Vienna, communicates some interesting facts concerning the diseases among the workmen in the quick-silver mines of Idria. He states macular, papular, vesicular, and pustular eruptions, and chronic, kidney-shaped ulcerations of the skin—inflammation, erosions and ulcerations of the mucous membranes, especially of the throat—swelling, inflammation, and suppuration of the glands—enlargement of the liver, with secondary atrophy, gastralgia, prosopalgia, sciatica, and nocturnal pains of the bones, periostitis, ostitis, necrosis, and caries, are originated by the influence of the mercurial vapor and dust. Independent of the venereal virus, diseases are produced which could not be discerned from such forms which are generally supposed to be the consequence of syphilis. Children born of parents who are exposed to the mercurial vapors are scrofulous, while those who were born previous to the parents' sojourn in Idria, are healthy. Iodide of potassium is the best remedy in all these cases. It eliminates the mercury from the system by forming soluble salts with it."—DR. B. KRAUSE.—*Cleveland Med. Gazette.*

"*On the Treatment of Nævus.*—By J. C. WORDSWORTH, Esq., Assistant Surgeon to the London Hospital. [Mr. Wordsworth thinks that there are many cases of nævus which might cure themselves spontaneously, if left alone long enough; but the fault is, that neither patient nor surgeon has patience enough to let nature have a chance.]

"It seldom happens that a month passes without some instances of nævus occurring in the practice of the hospitals to which I am attached; and I generally find that the friends of the patients are fully prepared for operations, as a matter of course. When a nævus is placed on one of its favorite localities, such as the scalp or face, the common impression appears to be that it must necessarily spread, and that therefore the sooner it is submitted to operation the better.

"It will be found that there is not always so much need of precipitancy as some would have us suppose. For some time—perhaps a few weeks—the nævus will continue to grow—rather rapidly for a time, afterwards more slowly—till it acquires the magnitude of a penny-piece. It then ceases to grow, usually; but sometimes acquires a much larger size. It has usually a well-defined limit, which is seldom much exceeded. If of the simple, *cutaneous* variety, it may become the seat of eczema, or of superficial ulceration, spreading in all directions. This may be its condition for some months, and it then gradually ceases, and cicatrization occurs. Scarcely a trace of tumor may be seen; over its site, if on the scalp, hair grows, of a darker color, coarser texture, and more thickly set, than elsewhere. This is a common course for the tumor to take. In a second series of cases, I have found the cutaneous nævus grow to a certain limit, then dwindle and degenerate, so as to leave a pale and scarred surface, with little or no remnants of its vascular elements apparent. In a third class, the nævus grows to the limit above named, and then ceases to increase; the vessels remain permanently, and it forms a more or less elevated tumor, of a dark red or purple color, on which hair may grow, but usually only scantily."—*Braithwaite's Retrospect*.

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"Cleansing of Glass and Porcelain Vessels. BY PROF. C. BRUNER.—It is a common experience of chemists, and druggists particularly, that some organic matter adheres so closely to glass vessels, bottles, etc., that it resists all solvents hitherto known, and the vessels are thus rendered useless for many purposes. The following method never failed to remove organic matter, of whatever nature it may be. The coating is well moistened with concentrated sulphuric acid, and then some powdered bichromate of potassa strewn over the same surface. The vessels thus left in a moderately warm place for a few hours (or over night) may very readily and entirely be cleansed by water."—*Dingler's Polyt. Journ., Nashville Med. Rec.*

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Necrosis from Phosphorus.—"There are in Prussia about seventy-five manufactories of phosphorus matches. These present annually from thirty-five to forty cases of maxillary necrosis. Those workmen were more especially attacked whose business it was to prepare the phosphorus paste and dip in the wood. In all cases, the disposition to this affection manifested itself to those persons, both male and female, who were of a cachectic or scrofulous habit, and had carious teeth before entering the factory. On this account, it is not proper to admit to this occupation sickly persons, or those who have carious teeth." *Vischew's Constatt., and Semi Monthly Med. News.*

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Idiosyncrasies.—Mr. Munn, Assistant Surgeon to the Middlesex Hospital, says: "Instances of the poisonous effects, on certain constitutions, of drugs ordinarily of moderate action, are not unfamiliar in medical practice. Ipecacuanha is, perhaps, one of the best examples of a drug that, even in a state of the minutest subdivision, is capable of producing, idiosyncratically, extreme results. But some articles of diet also are, to individuals, poisonous; a numerous class of persons might be easily found the members of which could not take, without inconvenience, one or other of the various alimentary substances. The object of this communication is, however, not to discuss the physiological questions which naturally

arise in the consideration of such a subject ; it is rather to offer an installment of facts.—J. M., an occasional patient, cannot eat rice in any shape without extreme distress. From the description given of his symptoms, I believe spasmodic asthma to be the cause of his discomfort. On one occasion, when at a dinner party, he felt the symptoms of rice-poisoning coming on, and was, as usual, obliged to retire from the table, although he had not partaken of any dish ostensibly containing rice. It appeared on investigation, that some white soup, with which he had commenced his dinner, had been thickened with ground rice.—A gentleman who, as in the preceding case, could not eat rice ‘without being suffocated,’ took luncheon with a friend in chambers. The fare was simple—bread, cheese and *bottled* beer. On the usual symptoms of rice-poisoning seizing him, he informed his friend of his peculiarity of constitution. The symptoms were explained by the circumstance of a few grains of rice having been put into each bottle of beer for the purpose of exciting a secondary fermentation.—A gentleman, some time since under my treatment for stricture, informed me that he could not eat figs without experiencing a most unpleasant formication of the palate and fauces ; and that the fine dust from split peas produced the same sensation, accompanied by a running at the nose. The father of this gentleman suffers from hay-fever at certain seasons.—Mr. P., himself a gentleman of a peculiarly nervous temperament, states that his father cannot endure the sensation produced by handling a russet apple. He also communicated to me that of Mr. T., who cannot remain in a room in which there is a cooked hare, on account of the peculiar effect produced on his system.—Miss ———, after eating eggs, suffers from swelling of the tongue and throat, accompanied by an ‘alarmed illness.’—Miss ———. In this case somewhat similar effects follow the taking of honey of any kind, and especially honey-comb, into the stomach, viz., swelling of the tongue, frothing of the mouth, and blueness of the fingers. The following is an extract of a note received by me from a lady, who says : ‘I had on three mustard plasters—one on the throat, one on the back of the neck, and another under the left shoulder. They remained on half an hour. Cotton wool was applied on their removal. About thirty hours afterwards, a painful stinging sensation commenced in the back of the neck, followed by violent twitching of the muscles of the face, arms, and legs, which continued in regular succession through the whole night. It yielded, after about twelve hours, to hot fomentations of poppy-heads, applied to the back of the neck.’ It cannot be ascertained that any medicine containing strychnia was taken.—A gentleman, member of the medical profession, with whom I am well acquainted, suffers from nettle-rash after eating veal. Veal has the reputation of being particularly indigestible. The above instance of the production of urticaria from its use, is, doubtless, not an uncommon one.—I have been informed of a lady who cannot remain in a room in which there is a cat. Although the cat may be concealed, the lady’s peculiar sensations immediately declare to her the presence of the animal.—A patient under my care, since dead of cancer, was invariably thrown into a state of nervous excitement by the exhibition of the compound infusion of orange peel.—A personal friend of my own suffered from erythema nodosum after eating shrimps, although these were perfectly fresh. I believe shell-fish generally is particularly liable to excite unpleasant consequences.”—*Charleston Med. Jour.*

MISCELLANY.

IN the notice of a suit for malpractice in dentistry, in our last Periscope, we inadvertently omitted to mention that the injured party was awarded damages to the amount of £10.

In the report of a case of suffocation from a tumor in the throat, complicated with pleuritis and bronchitis, a writer in the *London Lancet* (Nov.) alludes to the danger of such, and affirms that when tumors occur about the fauces, even of a moderate size, they cause dyspnœa and dysphagia, and very speedily prove fatal. He refers, in illustration, to two cases previously recorded, one of which, under MR. CURLING's care, was that of a man who had a fibrous tumor of the throat successfully removed; the other, one of a fibrous tumor of the pharynx, attached to the base of the skull, in a lad of sixteen, whose entire upper jaw was extirpated by MR. LATUM. In both of these cases the dyspnœa was most painful, and in the second there were frequent attacks of hæmorrhage. Life would have been destroyed in both instances by suffocation, had not operative interference been resorted to in time.

MR. E. M. C. HOOKER records (*Ibid.*) a case of a woman who has suffered for the last ten years with the most excruciating pain in the left leg, attended with wasting of the muscles of the limb and ulceration, with general atrophy and adynamia. After the failure of every other plan of treatment, section of the popliteal nerve was finally resorted to with success, and the pain, ulceration, atrophy, and adynamia rapidly disappeared.

In the course of a lecture on the "Physiology of the Circulation," (*N. Y. Monthly Rev. & Buffalo Med. Jour.*), PROF. JOHN C. DALTON alludes to the care required in making physiological investigations, in consequence of the complex phenomena and varied conditions attending the vital operations. In illustration, for instance, of the difficulty of ascertaining the character and properties of the animal fluids, he observes: "A striking example of this is to be seen in the secretion of the saliva, and its power of converting starch into sugar. All physiologists are now agreed that the saliva taken from the cavity of the mouth is capable of converting boiled starch into sugar; and yet the intensity of this action varies in a manner which has been hitherto altogether unexplained. At one time it requires ten or fifteen minutes to show traces of sugar in the mixture of starch and saliva, and at another the sugar can be detected readily, by the ordinary chemical tests, at the end of half a minute. This is because some organic ingredient of the saliva, essential to its action on starch, is more readily secreted at some times than at others; but we have not yet succeeded in ascertaining why or when the variation takes place. Practically, in preparing for an experiment of this nature, we must always test beforehand the particular specimen of saliva which we are to use; for, otherwise, we can never be sure that its activity is the same with that which was secreted a day, or even a few hours, before."

It is stated (*Brit. & For. Med.-Chir. Rev.*, from *l'Union Médicale*, etc.) that PROF. VANZETTA has successfully resolved inflammation by compressing the arteries going to the part. By thus cutting off the supply of blood, the condition for the continuation of congestion and inflammation is removed, and the disease most effectually jugulated.

DR. J. C. KEEVE, of Dayton, Ohio, reports (*N. Am. Med.-Chir. Rev.*, Nov.) a case of protracted stomatitis materni resolved by the syr of the

phosphates, after it had resisted various hygienic measures, such as the weaning of the child, change of climate, etc., as well as every form of medical treatment which had been before instituted.

In the notice of a case (*London Lancet*) in which a tamarind-stone lodged in the windpipe of a child, which was expelled after the operation of tracheotomy, the reporter observes, that of the various substances which have entered the windpipe, writers mention cherry, plum, and tamarind stones; natural and artificial teeth; fragments of bone; pieces of flint; food; nuts and nut shells; coins; buttons; shot; grass; beans and seeds; pieces of nutmegs; crumbs of bread; nails, etc. The symptoms of chest disease will vary according to the time the foreign body remains in the air-passages and lungs, which may sometimes be for years; but they are usually those of chronic irritation of the organs implicated.

DR. L. ELSEBERG states (*Med. and Surg. Rep.*) that C. Bergouhnioux claims (*Gaz. de Paris*) to have proved that the green or blue coloring matter of pus depends upon the presence of biliary pigment, as he has found it in the purulent fluid connected with a great variety of abnormal conditions.

The *Sci. Amer.* says that a new and very rich vein of platinum and gold has lately been found at Frederickstown, Mo., by Dr. Koch, of St. Louis.

The same journal states that a tooth of some extinct monster was found near Lafayette, Ind., which weighed over two pounds. A similar discovery was made in Fountain Co. about the same time. A portion of the jaw-bone of a mastodon was found, which measured three feet long and one foot wide at the widest part.

It is stated by M. DEMARQUAY (*Amer. Med. Monthly*) that when glycerine is applied to organic tissues, it penetrates them thoroughly, so as to make them transparent. It acts thus on the fibres of muscular and cellular tissues, and upon the amorphous substances of fleshy tumors. It thus brings out, clearly, the structure of certain tissues; and Robin availed himself of this action on the anatomical elements of fresh bone, in his study of *osteoplasts*. But it has an opposite action on other elements of our tissues, in modifying, and sometimes dissolving them, such as, for instance, the blood and pus-corpuscles, and epithelial cellules. His conclusions are that organic substances plunged into glycerine can be preserved for an indefinite length of time, provided the immersion has been sufficiently prolonged. He has had in his possession mutton-chops for at least three years, that had been soaked in glycerine, and they were as fresh as when taken from the butcher's stall. The form, color, volume, and original suppleness are preserved, and no odor is exhaled. He observes, however, that when injected into the tissues, it only preserves them a short time from putrefaction. In winter its preservative influence may extend to six weeks or two months.

The *Amer. Jour. of Insanity* quotes from the report of DR. JACOB LAISY, of Newburg, Ohio, the following, among other remarkable cases of insanity caused by the fracture and depression of the skull, and cured by the use of the trephine: "DR. L., of Indiana, æt. 30, was thrown from a carriage, fracturing the skull in the region of the frontal eminence, extending from the central line one and half inches toward the right. A portion of the orbital arch, which was forced in, was immediately removed. The patient was partially insensible for 18 days from the accident; fever

supervened, continuing three weeks. After the inflammatory symptoms had disappeared, he was able to be about, but was haunted with the fancy that ferocious animals were pursuing and seeking to destroy him. His memory gradually failed; excessive secretions of saliva of an acid character caused constant spitting, night and day." Further details are given, but no mention made of the length of time which intervened between the accident and operation.

In a communication to the Academy, M. DELABURRE states (*Bull. de l'Acad.*, and *Cincinnati Lancet and Obs.*) that he finds the safest and most agreeable way of administering ether or chloroform, or the two combined, is by a chiboux, having a double tube attached, by means of which any quantity of air desired may be admitted. The patient at first smokes air only, until accustomed to the action, when the anæsthetic vapor is gradually admitted.

DR. J. R. BLACK, of Cambridge, Ohio, thus writes to the *Cin. Lancet and Observer*: "In a peculiar form of inflamed lips which I meet with, with vermilion border, and sometimes the mucous membrane as far as the gums much inflamed, I lay aside borax, yellow root, nitrate of silver, etc. etc., and use the following, which I think a specific: Glycerine, ℥iv; Tinct. Sanguinaria Canadensis, ℥j; Tannin, ℥j. M." It is probable that glycerine, tannin, and cinchona, or other stimulant demulcents, astringents, and tonics, would prove equally as useful.

HON JOHN H. ANTHON, in a lecture on Medical Jurisprudence, (*N. Y. Med. Press*, Oct. 8,) states that "DR. RUSH reports a striking case of idiocy in a person born in Phila. When 20 years old he was unable to walk or speak. His head was that of a man, the parts below those of a child two or three years old. He had shed his teeth, and then exhibited a third set in three distinct rows in the upper jaw, but was wholly unable to chew his food." This may have been a case of irregularity from malposition of the permanent teeth, instead of the superaddition of adventitious ones, as here intimated.

PROF. POST, of N. Y., affirms (*Ibid.*) that more accidents have occurred with dentists, in the use of anæsthetics, than with surgeons, in consequence of their patients being kept in an upright, instead of being placed in a supine position; which he believes is the correct one, as respiration is less embarrassed in the latter, and syncope less apt to supervene.

It is stated (*Amer. Druggists' Circ.*, Nov.) that MR. LEWENTHAL, of Cologne, restores spoiled gutta-percha, after it has become unfit for use as moulds or cliches in galvano-plastic and other appliances, by softening it in hot water, and then kneading it with a small quantity of linseed oil, when it becomes as useful, and takes all the finest impressions, as when fresh.

ST. CLAIRE DEVILLE and DERRAY have succeeded (*Poggendorff's Annalen, Ibid.*) in fusing platinum in quantities of over twenty pounds, in gas-stone crucibles, by means of the heat produced by an oxygen-light gas flame. Two pounds (one kilogramme) of platinum required from 60 to 100 litres of oxygen, and the same portion of the platinum ore 600 to 900 litres of oxygen, to reduce it completely. This gas costs $4\frac{1}{2}$ francs. per 1000 litres, and was prepared from manganese.

PROF. F. F. RUNGE says (*Ibid.*) that "wax is readily converted into a soluble soap, having the appearance of milk, by heating it in a solution of pearl ash. When one part of pearl ash in ten of water is heated to

boiling, and two parts of yellow wax are introduced, a disengagement and effervescence of carbonic acid takes place, and when the whole is boiled with the same quantity of water as at first, a uniform milk will be the result. This liquid, when evaporated, gives a coating of wax insoluble in cold water, while the potash is dissolved." It is recommended for polishing various porous and other substances.

A correspondent of the same journal states that "borate (*biborate?*) of soda possesses the peculiar property of effecting the solution of gum shellac in water, by boiling the gum in a moderately strong solution of the salt. The same agent will also render benzoic acid soluble in water."

It is a common notion that the sudden withdrawal of alcoholic stimulants from those accustomed to their use will occasion delirium, but the following, among other strong testimony, will serve to show that it is erroneous:—In the course of an article in the *Bost. Med. & Surg. Jour.*, (Oct. 27,) DR. ED. JENNER COXE, visiting physician to the Charity Hosp., New Orleans, writes "that to all the patients admitted into my wards, without an especial medical reason for the contrary, not one drop of alcohol or malt liquor is allowed; and although the habits of many admitted frequently induce them to ask for the former, it is uniformly withheld, and to this day, in but three instances, has the least inconvenience resulted from such forced temperance. To supply the craving for such drink, and at the same time to invigorate the systems of all, a wineglassful of a tonic infusion, made of Peruvian bark, Virginia snakeroot, quassia, colombo, wild-cherry bark, etc., ground and mixed, is given, *volens volens*, three or four times a day, to all for whom it has been ordered. I am certain that this tonic-drink is in all respects more efficient than alcohol or porter to strengthen my patients, and enable them to leave the wards without much fear of a relapse."

DR. B. WOODWARD, of Galesburg, Ill., after relating (*Med. & Surg. Rep.*, Oct. 29,) several cases, to exhibit the relations of ulcerations of the urethra to stomatitis materni, and vomiting during gestation, observes that "the points of interest in the above cases are the dependence of vomiting and stomatitis on this ulcerated state of the urethra, and the ulceration, etc., caused by depravation of the blood." But it is most probable, as the editors of the journal remark, that these several conditions were merely results of a general cachexia, and not connected with each other except as dependent upon a common cause, which was removed by the general treatment.

The same journal states that MR. OSBORN (*Lancet*) has found chlorate of potash to possess toxic properties. "He has seen congestion of the brain and convulsions follow its use in children. He took, as an experiment, at intervals of some weeks, doses of from five to fifteen grs. of chlorate, which were followed by pain in the head, symptoms of congestion of the brain, slight paralysis of one side of the face, and loss of taste." These effects may, however, depend upon its properties, in common with all the other potash salts, of reducing the consistence of the crassamentum, and thus of dissolving the blood and solid tissues and producing general relaxation and inanition. Hence it should not be used too freely nor indiscriminately.

DR. WM. ESTEP states (*Belmont Med. Jour.*) that the only reliable hæmostatic he has found is the persulphate of iron. He reduces it to fine powder, and applies this with raw cotton to the bleeding vessel or

vessels, and says the hæmorrhage will be arrested instanter, even though the vessels be of considerable size.

DR. H. ERNI recommends (*Nashville Med. Rec.*) the use of liquor ammonia to remove the stains of nitrate of silver from the skin or white linen, but observes that it is less efficient than the well-known cyanide of potassium, which is so very objectionable in consequence of its actively poisonous properties. It is well known that the iodide of potassium will also remove such stains; and it is probable that its analogue, the iodide of sodium, and some of the chlorides and bromides, may possess the same power.

It is well known that there is a considerable play of colors in hardening steel, but as the order of these changes and their indications may not be so familiar to many, we give the following, from an article in the *Sci. Amer.*, on tempering axes: "These changes are very curious, and, if suffered to exhaust themselves, seem to follow the order of the colors in the solar spectrum, though commencing at neither extreme. First is observed a light straw color; next gradually deeper shades of that color; then pink, or a reddish-yellow tint, which deepens, and at last becomes violet. Blue follows, and indicates the lowest degree of hardness—next above no temper at all. The temper for axes is arrested in the deeper shades of reddish yellow (sometimes not till blue appears) by plunging once more into water."

DR. PAUL F. EVE, among other subjects of interest in his letters from the late seat of war, Italy, (*Nashville Jour. Med.*) mentions the recovery of four cases of tetanus. He observes that this favorable result was ascribed by the surgeon in charge to the *muriate of baryta*, in doses of from six to thirty grs. thrice daily.

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The value and necessity of sanitary science is now becoming so apparent as to attract popular attention, and increase the desire for its better appreciation and more general and positive application. This desire is finding expression in the usual mode of conventions, one of which was held in the City of New York in April last, and a copy of the transactions of which we have been kindly favored with by John H. Griscom, M.D., of that city. The importance of sanitary science to individuals and communities, as well as to humanity at large, cannot be estimated, as health, happiness, and prosperity depend upon it. Hence everything which has a tendency to promote its more rapid development, and increase its practical efficiency, should be encouraged; and as combined and systematic is better than isolated and irregular effort, a more general and decided movement should be made to enlarge its boundaries and extend its benefits. For this purpose numerous societies or boards should be organized, both public and private, national, state, county, and municipal, in order to collect the necessary data, and better promote the investigation of this science, as well as enforce its practical application. Journals should also be established for the more general and speedy dissemination of the knowledge acquired. Indeed in this latter respect an extensive and almost uncultivated field is offered; and it might be found more profitable, both

pecuniarily and otherwise, to publish journals to exhibit the means for the prevention of disease, than to follow the beaten track of those designed to show how to remove it. The advancement of one science, however, promotes the development of the other, and the study of both should go together. Nevertheless, for popular purposes, they may be separated, and hygiene made a special subject for common education, while therapeutics must necessarily be more exclusively limited to a particular class. But we have neither the time nor space to pursue this subject, even were it compatible with the special objects of this journal, not even so far as to notice the contents of the book before us, and much less to present a critical analysis of it; and therefore can only commend it to those more immediately interested in the subject-matter of which it treats.

Hints to Craniographers upon the Importance and Feasibility of Establishing some Uniform System, whereby the Collection and Promulgation of Craniological Statistics and the Exchange of Duplicate Crania may be Promoted. Description of a Deformed, Fragmentary Human Skull, found in an Ancient Quarry-cave at Jerusalem, with an attempt to determine, by its Configuration alone, the Ethnical Type to which it belongs. By J. AITKEN MEIGS, M.D., Professor of the Institutes of Medicine in the Med. Department of Pennsylvania College, etc. etc.

Anthropology, or the science which treats of man, is one of the most interesting and important subjects that can engage the attention of the human mind. It affords an almost illimitable field for thought and speculation, and indeed is so very extensive as to render it necessary for finite purposes to separate it into artificial divisions or branches, in order to facilitate its study and promote its better appreciation. These are designated according to their prominent points or more immediate objects. Thus, for instance, two of the principal are respectively entitled *Ethnology* and *Craniology*, the latter being subordinate to, and a branch of, the former. These, with other branches of the general subject, have greatly occupied the attention of our learned and philosophic friend DR. J. A. MEIGS, who has devoted much time and thought to their elucidation. In former publications as well as in the two papers, the titles of which are given above—both of which were read before the Acad. of Nat. Sciences of this city, and republished from its proceedings—he has presented some of the results of his studies, and earnestly invites more general attention to the subject. In the first of these, he dwells more particularly upon the necessity of collecting, preserving, registering, and describing the crania of the different tribes and races of men; and recommends the general interchange of duplicates of such catalogues, descriptions, and crania, in order to secure a more equable distribution of the material for ethnical study, and thus extend the area of investigation and facilitate the acquisition of that knowledge so essential to the comprehension of the great science of man.

In the second paper named, he has made an elaborate effort to determine, by its configuration alone, the ethnical type to which a certain deformed, fragmentary human skull belongs. In this attempt, he has presented much interesting matter bearing upon the subject discussed; and has exhibited so much originality of conception, learning, and logical accuracy of thought, as cannot fail to command the respect of his readers, and give them confidence in the probable correctness of his conclusions. These papers are well worthy the attention of the general as well as special student; and those interested in the subject, and wishing more definite information thereupon, are referred to their talented author, who may be addressed at the Acad. Nat. Sciences, Philadelphia.

THE
DENTAL COSMOS.
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No. 6.

ORIGINAL COMMUNICATIONS.

EXPANDING THE JAW.

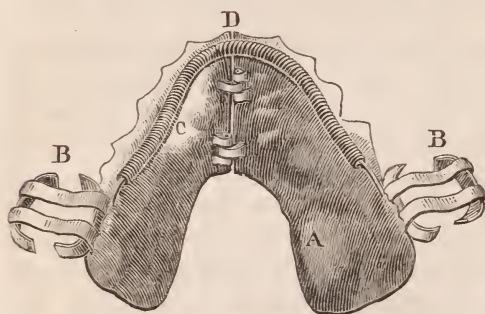
BY J. D. WHITE.

THE following is a very simple, but effectual method of expanding the superior maxillary. We have used it on many occasions, and believe it is better than the usual modes resorted to. It was suggested to us some years ago under the following circumstances: we placed a spiral spring in the mouth of a young lady of thirteen years of age, so arranged as only to act on the first bicuspid of the right side, to force it out into the arch, as it was inside of the lower. We will give our apparatus in another paper upon this operation.

We told the young lady to be sure to see us in two weeks, but instead of two weeks, it was four months. She had left for Charleston, S. C. When she returned, the *said tooth* was projecting out of her mouth between her lips. She inquired of us "whether we did not think it was out nearly far enough?" We replied, with a gentle grasp of our forceps upon it, that we thought it was, and we would complete the cure at once, and end her trouble. It did not require the weight of the forceps to remove it. The tooth had been literally *extracted* by the spiral spring. We were very much complimented on this operation, because the teeth ever since present a very regular appearance. Now, the instruction it afforded was this: the root of the tooth was short, and after the spring operated on it awhile, the tooth *tilted out* of the socket. This suggested to us the propriety of placing a plate in the roof of the mouth as far up as it could be extended, but cut through, to make two halves, with a hinge in front, back of the incisors; this plate or plates open and shut like a hinge. These plates are fastened to the first molars or bicuspids, as the case may be, and a spiral spring is attached on either side, with the bow of the spring ex-

tending around behind the front teeth and close to them, so as to be out of the way as much as possible. It will be seen that the action of the spring is to separate these plates, which not only force the teeth out, but also cause the alveolar ridge and gum to follow and mould themselves accordingly. This is more especially necessary when the regulating of such cases is commenced before the complete growth of the roots of the teeth to be acted upon. We completed the treatment of a case about a year since, in which we think this apparatus was expressly adapted. It was the case of a child about eight years old. The superior front incisors and the first permanent molars only were erupted, and the superior arch and entire row of teeth fell inside of the lower as completely as one cup or saucer sets in another. It gave a large and swollen appearance to the lower border of the face, and a contracted appearance to the cheek bones below the eyes. The space between the first permanent molars only admitted the point of the little finger, and the roof of the mouth was so contracted as to look more like a fissure than the roof of a mouth. As a matter of course, at this age the roots of the molars of the first set were partially absorbed, and the attempt to force them out would be to excite undue absorption and dislodge them prematurely. Besides, if they had been thrown out, the *caps* forming in the jaw of the permanent teeth might not follow the deciduous teeth. In other words, we regarded it as necessary that the whole, jaw teeth and all, should be moved together, to insure success. We have not been disappointed; the jaw moulded beautifully, and in about a year, the whole upper jaw was placed outside of the lower, and it has made such an alteration in the expression of the face, that the

child would not have been recognized except by those who watched the progress of the case. After the jaw was forced to the desired position, a solid plate was struck up to hold the parts in their new position until the first molars were lost and the bicusps had grown sufficiently



long to grasp each other, lower and upper, to insure the permanency of the case.

The accompanying figure shows the apparatus: A is the plate. B the crib bands for the first molar teeth. C the spiral spring. D the hinge joint.

[Entered, according to Act of Congress, in the year 1859, by JONES & WHITE, in the Clerk's Office of the District Court of the United States for the Eastern District of Pennsylvania.]

[Translated from the French, for the DENTAL COSMOS.]

DENTAL ANOMALIES AND THEIR INFLUENCE UPON THE PRODUCTION OF DISEASES OF THE MAXILLARY BONES.

BY AM. FORGET, M.D., C.L.D., ETC.

Memoir crowned by the Academy of Sciences at its meeting of 14th March, 1859.

(CONTINUED.)

Anatomical examination of the tumor.—With the surrounding soft parts it was an exact ovoid, thirty centimetres [11·8 inches] in circumference at its greatest diameter, and twenty centimetres [9·05 inches] at its least.

The soft parts adhering to its external face are marked with many fistular passages ending at inflamed and ulcerous points of osseous tissue. This tissue is thin, soft, and depressible, and is perforated by two orifices which lead to the interior of the cyst, from which flows a purulent, viscid, reddish liquid. A stylet introduced into one of these openings is stopped by a hard body, which sounds, under percussion, like a compact tissue denuded of its periosteum. In order to reach this object, I removed the tissue of the gums, which, condensed into a thick bed, forms a sort of operculum for the upper part, completing the cyst in which the morbid product was situated. This dissection shows that the jaw, from the ramus to the first small molar, which is in its socket, has been changed into a cavity containing a compact, saxiform, ovoid mass, the size of a large egg; grayish, unequal surface, studded with small tubercles, surrounded by a bed of enamel, and completely buried in the thick part of the bone. (See plate I. fig. 1.)

I next divided the tumor, along its axis, into two equal parts, each confined to the corresponding half of the osseous cyst that was comprised in the division. This revealed the composition of the tumor: it was formed of a smooth, glossy, compact, homogeneous, ivory-like tissue of a whitish-brown color. In the centre of it a kind of regular disposition of its elements could be discerned by the naked eye. (See plate I. figs. 2 and 3.)

Between the tumor and the wall of the cyst was a thick, fibro-cellular tissue, free on the side of the former, where it covered the whole intra-maxillary portion, (it did not extend over that part covered by the gingival tissue,) and was joined to the latter by filamental prolongations of a cellulo-vascular appearance—these being attached to the numerous openings that covered the face of the cyst. The external surface of this

membrane was bathed with a muco-purulent liquid, smelling like dental caries.

At the base and anterior extremity of the tumor was an indentation, fitting the crown of a large molar that stood between it and the maxillary bone. This is very exactly shown in plate I. fig. 3, *l. b.* A portion of the same tooth caused a slight elevation on the external face of the jaw, (plate I. fig. 2, *l. c.*) I also found the second small molar obliquely developed in the thick part of the bone, (plate I. fig. 2, *l. d.*) directly beneath the alveolus of the first molar, which was standing in its true position, (plate I. fig. 2, *l. e.*) This second molar was the tooth that I had encountered in the operation.

All the teeth, except the two last molars, had now been found, and the alveolar space appropriated for them was filled by the tumor. What, then, has become of the two great molars? Can it be that the bulbs, compressed from their very origin, have disappeared without leaving a single vestige of their existence? The numerous instances that have occurred of the simultaneous development of teeth and anomalous productions in the very centre of the maxillary, will not allow us to accept this explanation. In all the analogous cases that have fallen under my observation the teeth were of their ordinary dimensions and complete in number, although removed from their normal position, and sometimes buried even in the morbid substance itself.

In the case under consideration, I believe that this theory can be directly disproved by observing the origin of the tumor, with its mode of development, symptoms, seat, and particularly its anatomical characteristics. Microscopic observation arrives at the same result already reached by direct intuition, that is, that the tumor is composed of the integral substances of the teeth themselves, (see plate I. fig. 4.) This is in itself sufficient to prove the origin of the tumor, which has been further exhibited by the micrographic observations, made by Professor Ch. Robin, upon the anatomic section. I therefore feel no hesitation in declaring that the nutrient fluids first formed the two missing molars in their respective isolation and regular development, and afterwards produced the informal aggregation of the dental elements by a hypersecretion and morbid diffusion.

If we proceed from the consideration of the substance of this anatomical monstrosity to the original influences which prepared the way for its appearance, we will find that the fibrous membrane which envelops the tumor will assist us in determining its point of departure, and in comprehending the mechanism of its formation.

This membrane is confined to that portion of the tumor contained in the cyst, and forms a line of demarkation between it and that portion projecting above the osseous ledge. I believe this to be only an exaggera-

tion of the normal anatomical arrangement, which exists in very restricted proportions when the evolution of the teeth occurs regularly.

The membrane that envelops the base of the tooth is called by many anatomists the alveolo-dental periosteum, and is described with great precision by M. Oudet, under the title of the cortical membrane, because it has the function of producing the cortical substance or cement which is superimposed upon the ivory-like substance. This membrane is really the external plate of the dental follicle, and appears on our anatomic section much modified by the peculiar pathological action to which it has been subjected; this modification also appears in the bulb or odontogenic capsule. The morbid activity of the secreting organ explains the appearance of the ivory in the centre of the tumor, as well as the osseous cement so abundant on its circumference. This double arrangement is identical to both of these substances in the regular composition of the tooth, and is in itself sufficient to prove the character of the origin of the tumor.

The results of the observation may be stated in brief, thus:—

1st. An original union of the follicles of the two last molars, followed by an intimate fusion of them, caused by phlegmasial or other action.

2d. Under the same morbid influence the excess of vitality in the organic elements of the follicles has produced hypersecretion of ivory-like and osseous substances.

3d. That the irregular aggregation and diffusion of these has constituted the pathological growth.

4th and lastly. Its growth has formed in the jaw the cyst already described; and it has maintained therein a permanent inflammation, which has disorganized the osseous tissue and altered the structure of the adjacent soft parts to such an extent that a radical operation is unavoidable.

Final results of the operation.—Two years afterwards I again examined M. L. The right half of the maxillary was depressed toward the mesial line, and carried backward at the same time. The prominence of the chin inclined a little to the right, and the inferior dental arch was nearly a centimetre behind the superior at the extremity of the stump. The interval diminished regularly, and was hardly appreciable at the level of the great molars. This want of parallelism almost disappeared when the elevator muscles were contracted to a certain degree, so that mastication was not difficult, but it was very evident in the lowering movement of the maxillary. The deviation of the bone from the right to the left had given the same direction to the floor of the mouth, the tongue, the velum of the palate, and to its columns, without hindering the exercise of the functions of these organs. The portion of the left ramus which remained in the wound, abandoned without possible antagonism to the contractile action of the temporal and external pterygoid muscles, had been

carried upward and inward against the base of the zygomatic arch, where it remained immovably fixed.

A band of cicatricial tissue extended between the two osseous extremities, connecting them, and was coextensive with the incision. This plane of strong inodular tissue (lacking calcareous matter?) offered a point of support for the various movements of the tongue. Another case has come under my observation where the patient had, ten years before, submitted to disarticulation of one side of the jawbone; and in which this same tissue had, in a rudimental form, re-established the continuity of the bone, the play of which became constantly more precise and energetic.

Reflections.—When, considering the pathological anatomy of this case, I said that there was no analogous case on record, I did not intend to disregard the existence of the different anomalies of nutrition and dental development that have been described, nor the histological connection existing between them and the case under consideration.

These anomalies, though numerous and varied, are generally formed by the lateral reunion, or, more frequently, by the partial reunion of two or more contiguous teeth, and have no influence upon their form, position, or functional aptitudes, nor any morbid effect upon the maxillary. For this is sufficient to distinguish these slight anomalies from those which, by the considerable development and complexity of the elements which compose them, exclude all serious analogy, at least in a surgical point of view, between these and the former. I say surgically, because, anatomically, the similarity in composition, and in the laws of formation, of the primordial tissues implies, both in the simple and complicated fact, a common teratological influence, and a harmony of necessary filiation, both based upon a series of intermediate facts, which may be considered as so many steps by which the simple is lifted into the composite.

According to the doctrine—which its eminent author, the illustrious Geoffroy Saint-Hilaire, has so ably generalized, in applying it to the philosophic study of the dental system of the mammifera and birds—the case of partial fusion between two or more teeth, either at the crown or root, can be considered as the point of departure of the anomaly which I have exhibited in such unusual proportions. They are the first step made by nature beyond the regular methods of physiological development, and a preliminary step to a truly strange, informal, and monstrous arrangement.

When considered, either in regard to its initial type or under its more advanced form, this anomaly cannot be explained in either case, by the morbid primitive state of the odontogenic follicles, since when deprived of the vascular element these dental substances are, according to M. Oudet and others, incapable of being the seat of nutritive or pathological action. Those who hold this opinion are forced, in order to account for the alterations of structure and form which they represent, to go back to the

method of their formation, for it is only by that, that they can belong to organization, and be subjected to the laws which govern it.

Attribute it to whatever disease of the follicles you please, either with Geoffroy Saint-Hilaire consider it as a simple derogation in the method of physiological growth, the grouping of the dental elements in one amorphous map in the human species can only be understood if, with the learned author of the theory of analogues, we refer to that which occurs at the very origin of the evolution of the teeth. "Each dental rudiment," says the illustrious naturalist, "is then surrounded by an exhalent membrane, which causes the growth of the tooth. As this becomes isolated, it grows in that condition and forms a simple tooth; but, if two osseous nuclei approach and touch, while this exhalation of the nutritive fluids is taking place, they unite, crystalize into veritable stalactites, and form a compound of the various dental elements. The molars are thus formed, and also those dental agglomerations which are the natural growth in the elephant and other ruminating animals, and occur but exceptionally in man."

It was a case similar to the preceding that Geoffroy Saint-Hilaire had in view when he expressed the opinion that I have just quoted, and he has given a drawing of that anomaly in the appendix of his "Dental System of the Mammifera and Birds." A copy of this drawing will be found (pl. II. fig. 3) in this essay, and the reader will readily perceive that it is not without some analogy to the case described in my first observation.

Microscopic examination of the tumor.—BY M. CH. ROBIN.—Pl. I. Fig. 4, (400 diameters.)—This figure represents a portion of a slight cut made into the tumor represented, (fig. 3, *a*.)

The preparation is taken from near the free edge, or the irregularly mammillated surface of the tumor. The latter is formed principally of the ivory or dentine, easily recognized upon the thin section by its very fine tubes, disposed parallelly, or nearly so, through part of their extent, (fig. 4, *e*.)

These tubes start, radiating more or less regularly, from the little depressions or cavities observable in the mass of the tumor, (fig. 3, *a*.) Very near to each other through part of their extent these tubes of ivory become more rare, fine, and ramified as they approach the surface of the dental tumor, (fig. 4, *d, f*,) and end in a very sharp point toward the lines of junction between the ivory and the enamel, (*a, b, c*,) and the cement, (*f, g, h*.) The presence of the ivory, which forms the greater part of the tumor, demonstrates its dental nature very clearly.

Enamel.—Another important particularity is the presence of the enamel on the surface of the tumor, where it in some measure covers the irregularities with a varnish which moulds itself upon them in order to pene-

trate more or less deeply into the fissures or depressions that divide the tumor superficially into lobes.

This bed of enamel varies in thickness from microscopic dimensions to a millimetre, (0.03937 inch,) or near it, and is as irregular in places on the lower or adhering face as it is on the free surface, which the microscope alone allows to be seen. The portion of the section of the tumor that is here delineated (fig. 4) is taken at the level of one of the points where the enamel (*a b*) in a manner penetrates (*c*) into the body of the ivory mass of which the tumor is principally formed.

The enamel is easily recognized by its narrow prisms, from six to eight thousandths of a millimetre in width, which are in immediate juxtaposition, (fig. 4, *a, b*.) The figure shows them inclined as by the accident of the cuts in making the section. When the cut is perpendicular, or nearly so, to their greatest axis, their prismatic form with five or six faces is easily seen; this is shown in the neighborhood of *b*, (fig. 4.)

Cement.—In the depth of the fissures, and here and there in the mass of the tumor, near its surface, and especially that part of the surface hidden in the adventitious cavity of the maxillary bone, the microscope discovers some trails, or beds, of variable thinness, formed entirely of the substance of the cement, (fig. 4, *g*.)

The cement is inclosed between masses of ivory, and is consolidated by the immediate contact (fig. 4) with the masses between which it lies. It extends itself in places with the surface of the tumor, to the neighborhood, and even to contact with the enamel. The section represented in the plate is taken at a point that shows this arrangement, (fig. 4, *f, g, h*.) There are, besides, thin pieces of cement extending far forward into the body of the tumor.

The cement is known to be no other than the osseous substance. The figure before us exhibits the characteristic elements belonging to it. These are the microscopic cavities, called osteoplasts, or, incorrectly, osseous corpuscles, for they are excavations. The air that fills the dry bone makes these cavities appear black under the microscope, (fig. 4, *g*,) but in the fresh state they are full of liquid, and are pale and more difficult to observe than in the dry pieces.

These cavities, which are in breadth and length from one to three hundredths of a millimetre, are always of very irregular shape, on account of the presence of the fine tubes that start from all their peripheries and traverse even the substance interposed between the osteoplasts.

The best joined pieces show that these little canals are subdivided two or three times, and are then inosculated with those of neighboring osteoplasts. The portion of cement shown in the plate does not exhibit this arrangement, which was visible, nevertheless, in the parts close to it.

The cuts in the tumor exhibit, moreover, little openings that are either empty or full of a grayish or brown pus. These small orifices are from

two to six tenths of a millimetre and upwards in width, and from about one to two millimetres apart. The microscope shows that these orifices accompany the narrow irregular cavities, sometimes in the form of elongated conduits hollowed out of the ivory which they pass through. The instrument also shows that the tubes of the latter start from these cavities to radiate toward the surface of the tumor in the same manner as the tubes of the ivory in the normal tooth start from the natural cavity of the dental pulp. These narrow irregular cavities, more or less elongated, traverse the mass of the tumor, and some of them even reach within a few millimetres of the surface.

These cavities are, in reality, nothing more than the pulp cavities of this morbid product, either rugous from desiccation, or still containing some remnant of the dried pulp, in the form of a brownish or grayish powder.

(To be continued.)

INFLAMMATION.

BY J. L. SUESSEROTT.

INFLAMMATION being the cause, the accompaniment, or the consequence of a vast majority of all the disorders to which the human frame is liable, should engage the earnest attention of the dental surgeon, as it ever does the attentive observation of the surgeon and the physician. Its *intimate nature* being essentially a morbid change in the capillary vessels of a part, it cannot be said to attack any but organized and vascular tissues.

Informed as we are that in the whole range of medical science there is no topic which has received more attention or has been the subject of more extended discussion, it is natural that we should venture upon the consideration of inflammation, entertaining some doubts, whether or not the ideas we will advance will have the same fate as the numberless theories that took their turns, each giving way to some other, more ingenious, or advanced with more boldness by its author.

We do not expect to advance many new ideas, nor will we weary the mind of the student with abstruse theories, but presenting the phenomena usually noticed, we will endeavor to enlist the consideration of the dental student to that morbid change which is asserted by some high authority to be the cause of *all* disease.

The symptoms which generally though not essentially exist in inflammation, are pain, swelling, preternatural heat, preternatural redness, a modification of sensation, and an exaltation of sensibility. We say that they do not essentially exist; we mean by this, that it is not necessary for them all to exist, for we might have inflammation and not have swelling, or we might have some of these symptoms, singly or combined, and not

have inflammation. Thus, for instance, in a luxated joint, or a distended colon, we may have intense pain, as also in neuralgia, and not have inflammation; a dropsical effusion may produce swelling, and yet not be immediately accompanied with inflammation. In the natural blush of the cheek, or the florid appearance of the healthy robust youth, we may have *redness* existing, in a normal condition, and as an index of the beauty and perfection of the work of an Infinite Creator.

These signs or phenomena are not the only circumstances that occur in inflammation; in every case there is an abnormal condition of the vital actions, accompanied with an altered state of the nutritive and secretory functions.

Some of the tissues are more liable to undergo inflammation than others; the highly vascular the most, and those possessing the lowest degree of organization the least liable. Some tissues are never attacked, as the nails, the hair, and the enamel and the dentine of the teeth.

I am aware that I am now venturing upon disputed ground, but being fully convinced that it requires a degree of organization sufficiently high to provide the tissues with vessels to admit of the change under consideration, I do not hesitate to assert that an inflamed condition of the dentine has never been discovered. I do not wish to be understood as disputing the authority of those who have examined exceptional cases, apparently inflamed—cases, too, in which an exaltation of sensibility was markedly absent—but will venture to assert that, in each and all of these, there was not a normal development of dentine, or it was so much disorganized by disease as to admit of the coloring matter of the blood through its substance, after the breaking up of the blood corpuscles.

My province being the instructing of the dental student more than the student of general pathology, I may be permitted to digress for a moment, to explain, more fully, my reasons for denying the possibility of the production of inflammation in dentine.

In the first place, the want of organized vessels, the existence of which the microscope, that exquisite searcher, has not yet established. Believing, as we have affirmed in the commencement, that inflammation is essentially *a change in the capillary vessels*—by which we understand *organized* vessels, provided with nerves and vessels proper to themselves—of a part; and being able to explain the cause of exalted sensibility of dentine by other theories more plausible than that of inflammation, together with the fact that none of the products of inflammation have ever been discovered in the dentine of the human species, it can be as confidently asserted that dentine is exempt from this morbid change, as that the nails and hairs are exempt. Dentine being made up of tabules of exquisite fineness, together with intertabular substance, can be nourished without the existence of organized vessels, for, by the aid of capillary attraction, the liquor sanguis, without the red globules, is carried to the extreme ends of these

tabules, and the tissue is thus provided with the necessary pabulum. All nutrition is extravascular; by that we mean that it is carried on without, or from the outside of the vessels, and the fact that the nourishment for the healthy existence of dentine is carried to a greater distance without the assistance of vessels, than in most of the other tissues, is because of the immobility and permanence of this substance. Certain conditions are necessary in all tissues to elevate them to that standard of organization to render it possible for them to inflame; as we descend in the scale of vitality, we find this change taking place less readily, and as we get to the extreme of organization, we find that the change which is recognized as inflammation is never discovered; certain of the lower order of animals are supposed to be entirely exempt from this action.

The condition under consideration is variously classified; thus we have acute, chronic, and latent. In a second division, we have healthy and unhealthy. In a third, we have adhesive, œdematous, erysipelatous, gangrenous, and specific; this is Hunter's division. In a fourth, we have phlogosis, epiphlogosis, metaphlogosis, hyperphlogosis; this is the division of Lobstein.

In reference to the first division, when the progress is rapid, the phenomena well developed, and the symptoms severe, we say we have *acute* inflammation. When long existing, and not so severe, we give it the name of *chronic* inflammation; and when the symptoms are obscure, or hidden, it is called latent inflammation. In the second division, to which we have referred, when it repairs lesion of the body, we say of it that it is *healthy* inflammation; when it causes destruction of parts, unhealthy inflammation. And in the third division—that of the celebrated John Hunter—when uniting the sides of a wound, it is called *adhesive* inflammation; when accompanied with effusion of serum, œdematous; when the inflamed part becomes livid and then nearly black, erysipelatous and gangrenous; and when caused by the introduction of some *virus*, it is termed specific. In the fourth division—that of Lobstein—the term phlogosis is used as synonymous with inflammation; and the prefix *epi*, *meta*, or *hyper*, only designates the degree.

The existence of inflammation is generally recognized by—first, local, and second, sympathetic—general or constitutional symptoms. Among the first, we notice *redness*, heat, swelling, pain, throbbing, and an alteration or suspension of the natural secretions of the part. Although these symptoms are usually present, inflammation may exist without their development.

Pain is one of the most important symptoms of inflammation. It is greatest during the diastole of the heart, and depends on the presence, or the properties of the blood in the part; it is least severe in the loosest structures, and, like redness, it varies in degree, according to the nature of the part affected. The degree of suffering produced by inflammation

in the mucous membranes is subject to much variety. In some situations the pain is excessive, and in others, proving that we can have inflammation without pain, it goes on with its work of disorganization, without the patient being at all aware of its presence.

The character of the pain is greatly modified by the nature of the inflamed structure; it is burning and stinging in mucous membrane, lancinating and acute in the serous; dull, aching, or gnawing in ligamentous, or fibrous; rapid, darting, and very severe in the nervous. It does not always indicate the presence or seat of inflammation; for instance, in coxalgia or disease of the hip-joint, when in the incipient stage, we nearly always have the pain referred to the knee, and in wounds or inflammation of the liver, the pain is frequently most severe at the top of the shoulder or under the shoulder-blade.

In the three varieties of odontalgia or toothache, we have pain as the predominant symptom in all, notwithstanding the cause of the disorder is differently located. Thus, in true odontalgia, we have the symptoms produced because of exposure and consequent inflammation of the pulp; in false, we have the same prominent symptom, because of inflammation of the periodontal membrane, or some of the surroundings of the tooth; and, in the third variety, or sympathetic odontalgia, we have pain translated to the tooth, through sympathy, because of irritation or inflammation in some remote organ.

Inflammation is sometimes relieved by the second symptom, which we will now notice, namely: *swelling*, through the effusion of serum from the distended vessels. This symptom is occasioned partly by the enlargement of the vessels, but chiefly by the effusion of serum, the effusion of coagulable lymph or plasma, extravasation of blood, and impairment of absorption. It is always well marked in the subcutaneous cellular substance, while the skin is little, if at all, affected by it. The rapidity with which it comes on is influenced greatly by the exciting cause; it is generally slow in its progress, yet, in some instances, it proceeds with very great rapidity, covering a large extent of surface. The introduction into the system of venomous substances, as through the sting of an insect or the bite of a serpent, is often attended with the most frightful swelling, produced in an incredibly short space of time.

The impairment of absorption in an inflamed part is also worthy of notice; this has been fully established by experiments, such as the application of a solution of strichnia to an inflamed serous membrane, as the pleura, where it was found that the animal was not at all affected by it, or not for a great length of time after its application.

The nutritive function is no less affected by the presence of inflammation than the function of absorption; for, if an organ remains for a considerable time inflamed, atrophy is induced by the withholding of that pabulum which is necessary for its growth and nourishment.

When the part is inflamed, there is an elevation of temperature, but not to that extent which is apparent to our senses, the *heat* of the part never being more than from one to three degrees above that at the source of the circulation. From the experiments of Mr. John Hunter, he was led to believe that there was not any increase of heat; but more recent investigations have established the contrary. The researches of physiologists have fully proven that the animal heat, like every other physical endowment, is liable to undergo modification. Professor Dunglison has ascertained that, during labor, the temperature of the uterus sometimes rises from 96° , the mean temperature of the blood, to 106° ; and Sir Everard Home states that the oviduct of a frog ready to spawn, is two degrees hotter than the heart.

From these facts it is fully shown that there is sometimes a considerable elevation of temperature, even when there is no inflammation, or when there is only a slight approach toward it.

Of the local symptoms, the degree of *redness* is in proportion to the vascularity of the part and the intensity of the inflammation; but its presence or absence after death does not prove the existence of the latter, as this appearance might be brought about by other causes.

When produced by inflammation, it presents various shades, from the slightest rose to the deepest purple, always caused by the presence of a large quantity of *arterial* blood in the part. The color serves to indicate the kind of inflammation. There are some tissues, as the ligaments, naturally containing little blood or conveying serum only, which are never much discolored when affected by disease, no matter what may be the intensity of the accompanying inflammation. In the mucous linings, the redness, in the early stage of the disease, is bright and florid; but, as it progresses, it often assumes a purple or black appearance, especially when gangrene is about to supervene. We have frequent exemplifications of this in the mucous membrane of the fauces in malignant scarlatina.

When inflammation occurs in patches, or is circumscribed, the redness is generally greatest at the centre, from which it gradually diminishes in intensity until it reaches the natural standard of the tissue in which it is located. The color, as I have already stated, being caused by the presence of arterial blood, continues to be of a bright-scarlet tint as long as the circulation in the vessels is carried on vigorously; but no sooner does the blood begin to stagnate, than the part assumes a darker hue, possibly from some chemical change in the fluid under such circumstances. A permanent change of color in a part may be brought about by the production of new vessels in immense numbers, which are not afterwards removed by absorption; these new vessels, which are nearly always formed in an inflamed part, are not produced by a continuation of the old vessels, but by a union of blood globules, along which is deposited a cellular tissue.

With a few remarks in regard to the *treatment* of inflammation, we will

close. Numerous indications are presented, most of which require to be fulfilled in nearly every case, modified, of course, by the peculiarities of the attack, the age and strength of the patient, etc. The old maxim, "*tolle causam*," applies in the treatment of inflammation, perhaps, more fully than in that of any other disease. An occasional exception to this rule is met with in surgery, as in the deep lodgment of bullets and other foreign bodies. After the cause is removed, we must endeavor to diminish the action of the heart by nauseants, digitalis, and general and local blood-letting. By the use of ice, irrigation, and immersion, we must reduce the sensibility of the part, and, if possible, cause constriction of its vessels.

When we fail in reducing the sensibility, by the use of cold, we may succeed with warm fomentations, poultices, warm-water dressings, immersion in warm water, or the application of steam. By the use of diaphoretics, mercury, iodine, the warm bath etc., we must endeavor to restore the secretions. When the inflammation becomes chronic, we must remove it by counter-irritation. For this we use irritating lotions, issues, setons, blisters, sinapisms, etc. When the vessels are turgid, we must cause their contraction by astringent lotions, aided by scarifications, leeches, etc., by position, frictions, and rest. We must prevent the afflux of blood into the part; and we must ever keep before us the influence of the mind upon the body, and endeavor, by every possible means, to prevent the patient from becoming mentally depressed.

(To be continued.)

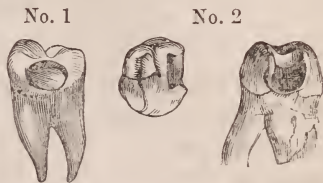
APPROXIMAL CAVITIES.

BY CHAS. WOODNUTT, D.D.S.

THE dental practitioner is called upon to perform a great many difficult operations, but none in which he more often fails than that of filling those cavities which he finds in the approximal surfaces of bicuspid and molar teeth, particularly in the posterior surfaces of first and second molars. He fails, too, at the very points where his fillings should be strongest—at the upper part of the cavity, next the gum, and again just under the masticating surface, where it is impossible for him to see, and where he has to work around a corner to get under the overhanging roof which is always left at that point when the cavity is prepared according to the method laid down in the books, a method which has been generally adopted by the profession, and one which is open to several objections. I refer to the plan of getting space by means of the V-shaped cut, a plan by which half of the masticating surface of the tooth is often removed, and in such a manner as not to admit of its being replaced, thus leaving a large portion of the dentine denuded of its enamel, and exposed to every external corroding agent that may come in contact with it.

The most objectionable feature in this mode of preparation is that the operator is unable to see the cavity, or at best but very little of it, thus rendering the success of the operation so doubtful as to cause the unskillful to hesitate between attempting to save the tooth or immediate extraction. There is a plan, practiced by a few gentlemen, but which I am persuaded is not generally known to the profession, which entirely obviates these objections. My attention was first directed to it by Dr. McQuillen.

With a sharp and heavy chisel cut a groove through that portion of the masticating surface that overhangs or forms a roof to the cavity, leaving the buccal and palatine or lingual walls (according as it is a superior or inferior tooth) standing. After removing the decayed matter, give the cavity the proper shape by making the bottom of the groove a little wider than the top, and carry the same shape up, making the cavity gradually larger from the masticating surface toward the neck. The accompanying cuts will illustrate my meaning—No. 1 the old, No. 2 the new method. Then, if there is not sufficient space between the tooth and the one next it to condense and finish the filling, cut away the buccal and palatine or lingual walls, as the case may be, sufficiently for that purpose.



The gold is to be introduced from the masticating surface, as in a plain crown cavity, bringing it down flush with the surface as in these fillings, and giving it a slight scollop, so that there will be no liability of dislodging it in mastication.

Great care should be taken to consolidate well as we go from the bottom of the cavity to the orifice on the approximal surface, letting the gold extend a little above this surface, to be condensed afterwards.

The advantages of this method are, that you convert a cavity that it is with the utmost difficulty that you can see any part of, and that you have to work around a corner to get at, into a plain crown cavity that in most instances you can see all parts of, and where in every case you can get direct pressure, thus insuring a better operation, with of course more chances of its ultimate success. The large portion of the surface of the tooth which in this way is preserved for the purpose of mastication, is no small argument in favor of the operation.

It also enables the operator to get into the fangs, when the pulp is involved from the posterior, with much more ease and less sacrifice of tooth substance, than by any other method with which I am acquainted.

It has been objected to this method, that it would take more time and labor to prepare the cavity in this way than the old; but that is no objection whatever, if it can be *better* done, and with *sharp* and properly-shaped instruments it can be done in less time, with more ease to the operator and more comfort to the patient, than by the old method of filling.

And here let me say a word about instruments. Dentists, particularly young ones, are prone to use cutting instruments that are entirely too small for the purpose, and that are illy proportioned; a large heavy handle with a small blade, or a large blade and a very small handle. The most of our instruments should be strong and heavy, and all of them well proportioned. There are some small ones required, of course—for cavities in incisor teeth, for instance; but there should be a great many more large ones than are usually found in a dentist's case.

But it is of still more importance to have them *sharp*, as you can work much more rapidly, and with less pain to the patient. In fact no dentist can be justified in using dull instruments, if it is possible for him to obtain a whetstone.

FANG FILLING.

BY A.

IN the July number of the *Dental Register* we find an editorial, entitled "Thoughts on Fang Filling," by George Watt. After recommending certain prophylactic treatment, Dr. Watt suggests filling the crevices of teeth and leaving the fangs, from which the nerve has been removed, without filling. The only objection urged *against* the practice of filling fangs is, "that when the canal is filled through its entire length with gold, the fang (and of course the periosteum) is subject to sudden changes of temperature, on account of the conducting power of gold; and this we believe," says he, "to be a fruitful source of periostitis."

We have frequently heard this objection urged against fang filling, and have heard it recommended to fill the point of the fang and the cavity of decay with gold, and the intervening space with some non-conducting substance, to avoid the trouble here mentioned; but we have never yet been able to see any good reason for this *mixed practice*. We have been in the habit of treating this class of teeth for the last two years, and our experience has been that, after *properly treating* the fang, the more perfectly we succeeded in filling the nerve cavity, the less trouble we have had with periostitis. However correct the practice of *not filling* the nerve cavity may be, it seems to us that the objection urged *against* filling "has no foundation in fact."

The cases cited by Dr. Watt in this and succeeding articles on this subject, are much more indicative of the *beneficial effects of the prophylactic treatment* adopted than that gold in the fangs of these teeth would produce periostitis. If (as in most cases it is) an exceedingly thin layer of dentine is sufficient to protect the pulp from any very important changes on account of gold fillings, why is it that the periosteum should be very seriously affected by gold in the fang of a tooth with the entire wall of dentine between the gold and the periosteum? Will Dr. Watt tell us?

While we fully believe in the "conducting power of gold," we also believe that the susceptibility of dentine to be affected by it, or its power to conduct the stimuli of heat or cold, depends very much upon whether the dentine is in a healthy or diseased condition. But, without discussing these conditions at present, it is sufficient for our purpose to say that *dead dentine* is almost entirely a non-conductor of heat or cold. Should any one doubt this, a simple experiment will satisfy him that the statement is correct. For instance, fill the nerve cavity and crown of a tooth as perfectly as possible with gold, then take two instruments, putting the point of one into ice until it is as cold as the ice will make it, and the point of the other into the flame of a spirit-lamp until it is hot enough to burn, then apply them alternately to the filling, and see how long it will take the patient to determine the hot from the cold instrument from the effect produced upon the periosteum. This simple experiment, we believe, would satisfy even Dr. Watt that *dead dentine* is sufficiently a non-conductor of heat or cold to protect the periosteum from any *very* sudden changes of temperature, and that the presence of gold in the fang of a tooth is not *necessarily* a "fruitful source of periostitis."

ALVEOLAR HAEMORRHAGE.

BY ABR. ROBERTSON.

ALTHOUGH all of our journals are pretty thickly sprinkled with articles on excessive hæmorrhage from the extraction of teeth; and although there is a very marked general agreement in relation to the causes and conditions on which it occurs and depends, as well as to the general outline of treatment necessary to arrest it, I am still inclined to add the history of a case or two that have occurred in my hands, and which, for the time, gave me a great deal of anxiety. And I know of nothing, indeed, more calculated to excite anxiety in the mind of the practitioner of dentistry than an obstinate case of hæmorrhage after the extraction of a tooth, and especially if it be secondary hæmorrhage.

I say a case or two; not that I have had but a couple of cases of excessive bleeding in an experience of full twenty years, but that—although in common, as I suppose, with almost every dentist of any considerable experience, I have had many cases where some treatment seemed called for to arrest the flow of blood—I now recollect but two cases that ever gave me any especial anxiety.

The first of these occurred in the autumn of 1847. The patient was a man of about twenty-eight or thirty years of age, of about medium height, of rather a spare habit, of active movements, and what, by phrenologists, would probably be called of a nervous temperament, and by occupation a bookbinder.

The operation was the removal of the root of a lower bicuspid. It was broken, or rather decayed away quite to the gum, but still very firm in its socket, and gave me some trouble to remove it; but I succeeded finally, and very much to the satisfaction of my patient, and without any material laceration or injury to the gums; neither was there, at the time, any unusual degree of bleeding, either in time or quantity; but between five and six days afterwards my patient returned to me bleeding most profusely, and said that he had been so bleeding for four or five hours. I cleaned out the socket from whence the root had been removed, and plugged it with pledgets of cotton previously moistened with water, and rolled in pulverized nut-galls, over which I placed a plate of silver, confined to its place by clasping the contiguous teeth, thereby securing steady and constant pressure. This arrested the bleeding for the time, and my patient went away; but in a few hours he returned, bleeding as profusely as ever. I then substituted pulverized nitrate of silver for the pulverized galls, and applied my compress as before, and with more satisfactory results, for in an hour or two after I saw him on a stage-coach, having started, with his family, to visit some friends in the country. As there was still a very slight oozing of blood, I felt considerable apprehension at seeing him go away from my immediate reach; but as I thought the change of air might be of service to him, and as I did not wish unnecessarily to alarm either him or his family by expressing my fears, I thought it not best to oppose his going. On his return, two or three weeks afterwards, he told me that the blood continued to ooze a little for an hour or two after he started, and then ceased; after which he had no further trouble from it.

My second case was a young woman from Canada, apparently of about twenty-two years of age; fully medium height; rather inclined to *embonpoint*, but not decidedly so; of graceful form; with a pleasant face and manner, and a complexion that by gas-light seemed very fair, but which, by daylight, assumed a rather sallow, unhealthy kind of hue. She came to my office, (then in New Hampshire,) about eight o'clock one cold Saturday evening, in the winter of 1855, and wished me to extract her right second lower molar tooth. After examination I applied my forceps and removed it, and with considerably less than the average amount of force required in such cases. She expressed herself delighted at the ease with which I had taken it out, and was about to leave; but, noticing that blood was flowing more freely than is usual after the extraction of a tooth, I suggested that she had better wait till the bleeding had ceased. After waiting a considerable length of time—she rinsing her mouth freely with cold water meanwhile—and seeing no abatement in the bleeding, I added tannin to the water, but without effect. I then plugged the alveolar cells firmly with pledgets of cotton, moistened and rolled in tannin. This seemed to check the bleeding for a very short time, but did not

stop it entirely. I next applied pledgets of cotton saturated with ol. terebinthinæ, and then with tinct. matico, but all with no more favorable results. I then resorted to the nit. argentum, which I applied by moistening pledgets of cotton and rolling them in the pulverized salt until they had taken up all they would contain, and with them firmly plugged the cells. To my great delight, after this application the bleeding stopped, and my patient left my office about an hour and a half after the tooth was extracted. While in my office I learned from her and her friend who accompanied her there, and from others subsequently, that she was stopping in the city with an irregular medical practitioner, for the purpose of being with and nursing a younger brother, who was there to be treated for some scrofulous affection, and to be herself treated for leucorrhœa, or some other uterine difficulty, and was at the same time acting as a kind of sub-housekeeper for her medical adviser, a female physician.

The next day, in passing her office, and feeling a great deal of anxiety about my patient of the night before, I called to inquire about her, and was told that my application had only restrained the hæmorrhage for a few hours, and that she (the *madam doctor*) had stopped it by the application of "the scrapings of sole leather." Although I could not readily understand why the little tannin contained in the leather should have so much more effect than the pure tannin, I was very glad to learn that the bleeding had been stopped, and by any means or by any hands.

On the Tuesday following a messenger came, desiring me to come and see my patient as soon as possible, saying that she was still bleeding badly. Having already tried most of the well-known powerful styptics—the sesquichloride and persulphate of iron had not then been brought to my notice as a styptic—and knowing that the "cobweb"* had a very general popular reputation for arresting hæmorrhage, I provided myself with that article and went to see my patient, whom I found lying in bed, with her head over its side, and bleeding badly; and she said she believed she was bleeding to death. First of all, I directed her to assume a position as near erect as possible, consistent with a sitting posture. I then cleaned out the alveolar cells as well as I could, and plugged them with the cobweb; and, to my great gratification, found the bleeding was stopped by it immediately.

On examining my patient I found all her extremities almost deathly cold, her face flushed, and her head hot. I ordered a hot pediluvum, to

* I was not aware, until after I commenced writing this article, that cobweb had been recommended in any of our journals as a styptic; but on looking over to see what had been written, I found that Dr. Roley Augustine reports a successful use of it in a case where all other means had failed. His report is in the *Dental News Letter* for October, 1854, and quoted in the *Am. Jour. of Dental Science*, vol. v., new series, for 1855, p. 487.

which should be added a large quantity of ground mustard, and waited to see the faithful administration of it, and that her feet were afterwards thoroughly dried and rubbed with coarse towels. I then directed her to take care to keep her extremities warm, to keep herself quiet, to avoid all excitements and exertions, and to send for me immediately on any recurrence of the bleeding. I did not see her again, but had a message some days after that she had no return of the hæmorrhage.

From my success in this single case I would most strongly recommend—as strongly as I could from the experience of any single case—a trial of the cobweb in any case of untractable alveolar hæmorrhage. It is always attainable, and everywhere, and easy of application.

WHEELING, VA.

PEARSON'S OSTEOPLASTIC.

BY J. WARD ELLIS.

I WISH to ask your opinion of "Pearson's Osteoplastic" as a material for plugging teeth. My own experience with it has been very limited. Being acquainted with the inventor, I have been induced to try it. About two months ago I filled two badly-decayed incisors with it; they now look as well as the day they were filled, and are free from pain. At the same time I also filled in the same mouth an inferior molar, in which the pulp was slightly exposed; the filling caused intense pain immediately, which continued for about three hours, when it subsided. The tooth is now sensitive to heat and cold, the same as is frequently the case after filling with gold. Whether it will be durable, and preserve the tooth, must of course be a question of time. What effect does the acid (with which the powder is mixed) have upon the bone of the tooth?

The ease with which it is prepared and inserted into a cavity, together with its close resemblance to the color of the tooth, is already inducing many to use it who of course can know nothing of its effects upon the health of the tooth into which it is inserted. It is therefore the more important that all the information possible should be had in regard to it.

CHICAGO, ILL., *November 15th, 1859.*

We have not yet used the above material for plugging teeth; perhaps some of our correspondents can give the desired information.

J. D. W.

ELECTRICAL ANAESTHESIA IN SURGICAL OPERATIONS.

BY W. G. OLIVER.

IN accordance with your desire, I have penned a few suggestions upon the subject of electrical anæsthesia in surgical operations. When, after repeated experiments, the fact was established in my mind that the nerve

of a tooth could be anæsthetized by a current of electricity, it seemed self-evident that each and every nerve in the human system could be similarly affected by the same subtle agent, as soon as the proper mode of applying it could be developed. Thus actuated I commenced a series of experiments on my own flesh, by passing the current through the limbs in various ways, and passing a long needle through the most fleshy parts; it soon became evident that great benefit was derived from the anæsthetic properties of the current. I then applied to several surgeons and accoucheurs, in this vicinity and Toronto, Canada, for the purpose of testing the matter practically in the public hospitals. I received several promises, but only one gentleman (Professor Frank Hamilton) was in a position to grant my request. I was in New York last November, and called on Professors Mott, Wood, and Van Buren, and from those gentlemen received every encouragement and facility; up to the present, there has been but few opportunities for experiment, although they have been diligently sought. But a detailed account of *all* the public experiments will give some idea of the "modus operandi," and the results to be expected, and leave me clear of a suspicion of having made a partial statement.

EXPERIMENT 1. *Buffalo Hospital, February 10, 1858.*—In presence of the clinic of the Medical College, Prof. Frank Hamilton, surgeon; subject, a woman twenty-five years of age; swelling of the varicose veins, left leg. A naked copper wire was wound around the leg, above the knee, nine or ten times; a similar wire was wound around just above the ankle, and the negative pôle attached to them both; a metallic rod was placed in the hands of the patient, to which the positive pole was connected; the circuit being complete, the battery was set in motion, and a current passed for five minutes. The patient complained of burning and pricking sensations from the wires when the current was strong; it was then reduced to a mild, uniform one, and the operation commenced by the professor passing a needle and ligature through the part affected, taking up a piece of flesh, one inch in thickness and about two inches through; the ligature was then tied, and the same operation was performed three inches below the first. During the operation the patient appeared to suffer considerable pain; but in a few seconds after the ligatures were tied, the pain ceased entirely, and the battery was put out of connection; very soon the patient complained of severe and darting pain in the region of the operation, which seemed to increase until it became insupportable. A gentle current was then passed through the parts as before, and in a few seconds she was free from pain; in five minutes the current was discontinued once more, and in fifteen or twenty seconds the pain returned, less violent than before, but still severe; the current was established again for a few minutes, and the patient was left free from pain.

I am not prepared to say how much relief was afforded by the current

in this operation, but it was evident the after-pain was completely controlled by it.

EXPERIMENT 2. *Elkoplasty, February 17.*—Before the clinic and several medical gentlemen, Prof. Frank Hamilton, surgeon; subject, an intelligent seaman aged twenty-five. This man had an ulcer of long standing, on the front part of left leg, having a surface of diseased flesh five inches by three. A wet bandage three inches wide was wound around the limb, six or seven times, above the ulcer, and a flexible copper wire wound around the bandage (about 20 times) and secured; a similar bandage was placed at the ankle; the positive pole attached to the upper, and the negative to the lower bandage; a gentle current was then passed through the limb until the muscles became contracted, and severe pressure was felt; it was then moderated and kept steady for five minutes, when the operation commenced by the professor cutting all around the ulcer, and sliced the whole of it off, then removed every particle of diseased flesh from the muscular and bony parts. The patient was frequently questioned if he felt pain. He said: "No, only rather severe pressure at the bandages." The apparatus was then removed, and placed in a similar manner on the right leg; a piece of healthy flesh was then cut out, corresponding in size and shape to the orifice made by the extirpation of the ulcer. The flow of blood was so profuse from the healthy leg, that the operator could not proceed, and remarked: "That he must stop it by the aid of scalding water, which would be very painful." The water was procured, and dropped into the wound from a sponge until the hæmorrhage ceased. The patient was often questioned, as before, but invariably answered that he felt no pain. During the time of checking the flow of blood, the professor purposely dropped some hot water on the other leg, just above the knee; he immediately exclaimed "Oh, that's hot!"

EXPERIMENT 3. *Buffalo Hospital, February 20, 1858.*—Prof. Frank Hamilton, surgeon; subject, a German, aged thirty years; ulcer on the leg. Prof. Hamilton's operation of elkoplasty was again successfully performed in this case, which was in most respects similar to the one of the 17th inst. The electrical bandages were placed above and below the ulcer, as described in the operation of the 17th ult.; the connecting wires attached, a current was passed through the limb about five minutes, and the operation proceeded as before. It was evident that the patient suffered some pain during the operation, and when questioned, said: "Yes, a little." The current was then increased until he complained of severe pressure at the bandages, (which were quite loose.) On the completion of the operation, and the bandages were removed, it was then discovered that the poles of the battery had been *reversed*, viz.: negative to upper and positive to lower bandage—hence the anæsthesia was only partial.

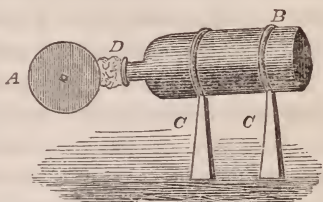
(To be continued.)

DECIDUOUS TEETH AT TWENTY YEARS.

BY M. S. PEASE.

I HAVE recently met with a rare instance of the preservation of temporary teeth. A young lady about twenty years of age called upon me to have some teeth filled; upon examining her teeth I found that she still retained in the upper jaw the lateral incisors of the temporary set; they were situated one on each side, between the central and lateral incisors of the permanent set. They were firmly set; the arch was very regular and not uncommonly broad, and the teeth looked as though they would last many years.

I have contrived a little improvement for keeping the corundrum-wheel wet while grinding teeth, that is, I think, quite a help, though others may have something like it; perhaps you will get the idea of it by this rough sketch. A, corundrum-wheel; B, a glass phial holding about a pint of water; C, standards to support the phial; D, a small sponge. The phial wants to be three-fourths full of water, the sponge to fit loosely into the neck of the phial and project about an inch; if the sponge is too tight it will not "*give down*" freely; it should be just tight enough, so that the water will not drip from it when in its place. The sponge should press lightly against the wheel, and it will not only keep the wheel wet, but it will take up all the waste from the tooth, so that you can grind any length of time without stopping. The sponge will need to be taken out and rinsed once in two or three hours while in use.



A SINGULAR CASE.

BY W. H.

THE following interesting case I have from an eye-witness, and good authority:—

About a year since, a lady applied to a dentist in Boston, Massachusetts, to have several teeth extracted, preparatory to an artificial set. She was placed under the influence of ether, and the operation commenced; but before finished, it was deemed advisable to discontinue a further attempt, owing to her violent struggles and gasping for breath, and it was with some difficulty that she was finally restored to consciousness. The lady was carried to her home, and immediately went into a decline. The best medical aid was procured, but with little or no benefit. It was soon ascertained that one lung was entirely inactive, and she was

given up as incurable. Her sufferings grew more intense day by day, until one night she was thought to be dying, when she required an attendant to raise her up speedily, as she could not breathe. At the instant of being raised up she was seized with a fit of coughing, and immediately threw up a large molar tooth, with such force as to fly nearly across the room. She felt immediate relief, and from that time began to revive, and was finally restored to health. I leave the reader to draw his own conclusions.

THE PROFESSION IN ENGLAND.

(FROM OUR LONDON CORRESPONDENT.)

You will have learnt, ere this, the reason why particulars of the interesting proceedings attending the inauguration of the "Metropolitan School of Dental Sciences," and of the opening of the fourth session of the College of Dentists, did not reach you by the Great Eastern steamship. That great vessel did not sail, and I failed to communicate with you otherwise, earlier, from unavoidable circumstances.

It has now become unnecessary for me to allude to the October professional proceedings in Cavendish Square, as you are no doubt already in possession of the facts connected therewith, through the medium of the *Review*. I have therefore little to communicate, and indeed should have delayed addressing you for a few weeks to come, but feel called upon to notice at once some very extraordinary statements in your useful contemporary, the *American Quarterly Dental Journal*, the October number of which is by my side. I need only remark, in reference to professional matters here, that the "Metropolitan School" has already proved a decided success; the classes are well attended by students, who appear to be in earnest. The college lectures, inaugurated by Mr. Erichsen, are also highly esteemed. Three of them have been given, and listened to with profit and pleasure.

It is understood that the College of Dentists will issue diplomas to its members at the close of the year.

The fact of the college having survived the shock of the amalgamation failure, the activity lately displayed by the executive in defending the public rights of dentists, and the unmistakable progress accomplished by the institution, instead of bringing a graceful tribute of acknowledgment and approval, has been the means of arousing the wrath of the organ of the opposition. The *British Journal of Dental Science* had the opportunity, as representing the Pantological Society, to notice in kindly professional spirit the exertions of the College of Dentists; but rather than acknowledge that any good thing could come out of Cavendish Square, it descended to personalities of an abusive nature, which have been dealt with by the *Dental Review* with justice, albeit with becoming

dignity. A good cause can need no such doubtful weapons as vituperation and malicious falsehood for its support; it is therefore lamentable to witness that such are employed, even by pretenders, to the literature of a liberal profession. This allusion to literature brings me to the point. The American journal to which I have alluded, (October, 1859,) at page 523 contains a statement which is not clearly comprehensible. This is the statement: "We remark chiefly in respect to the periodical literature of dentistry in England, that the rotten branches of plagiarism and disengenuousness should be removed," etc. If your readers will be kind enough to compare the *London Dental Review* with your own excellent publication and your contemporaries, I think it will be apparent that the above statement is really uncalled for. It will certainly be found that the leading dental journal in Europe contains an equal amount of original matter of useful quality with any of its contemporaries across the Atlantic. It is a pity that the writer of the statement should not have taken more pains to make himself really acquainted with English periodical literature before condemning it in such harsh and yet *patronizing* terms. He seems to have read *one* publication, and taken it as a sample of English professional journalism.

I now take leave of this polite critic, and proceed to page 540 of the *American Journal*, where I find, under the head of "European Correspondence," a letter dated from Paris. The letter commences by saying that the College of Dentists has successfully established one dental school, and the Odontological Society are going to open another; that the writer has heard the *names* of the gentlemen composing their faculties, but as he is unacquainted as to their identification with theories in dental science, it is likely a mere *local interest* is desired. Can anything be more absurd than such a supposition? The prospectuses of these schools are freely distributed among the profession, and as freely are the respective merits of each canvassed; while every one knows that the college is a representative body, in which every respectable dentist may have a voice if he choose.

The college was founded publicly and has always been conducted as a public institution, and if it possess not, as yet, a charter of incorporation, the reason is simply that the unfortunate differences of opinion in the profession have prevented it.

The writer mixes up the use of amalgam in connection with the dental schools, in a manner which hardly requires notice, as it must be tolerably well known by those who read dental journals, that the use of amalgam in England is *not* "universal." It is used when the operator considers a tooth too frail to bear the introduction of gold, and if a good amalgam *be* so very injurious, it is a remarkable fact that so few ill effects become apparent. Of one thing I am quite sure—gold will, in teaching, be shown to be the *best* material for filling teeth, although amalgam will, I suppose, not be condemned as worse than useless.

As to the immense amount of mechanical work done in England, I should certainly be surprised at it if it amounted to anything like what the "European correspondent" represents it to be; but the incorrect information he has collected with regard to the reformation movement is not less incorrect than that relating to mechanical dentistry. It is quite true that when you enter a workroom you often see "hundreds of models" on the shelves. Is this considered *extraordinary* in America? The number of assistants in English laboratories, however, I opine, is an exaggeration of the very first water. I do not believe he can name *one* dentist in the three kingdoms who keeps "twenty journeymen" in his workshop. I know not one who employs half that number. Some of the best and largest practices are conducted with the help of from two to five assistants. But very many dentists in England think themselves fortunate if they can *constantly keep* one pair of hands at work, and those hands being part and parcel of themselves.

In conclusion, I acknowledge that the "correspondent" writes in a friendly spirit—the same spirit in which I am now penning these imperfect remarks. I dare say on his return from the continent he will pass through the Old Country again, when perhaps he will have better opportunities of judging of professional matters. He must not allow the channel "*mal de mer*" though to influence him in future communications to the *American Journal of Dental Science*. Rather let him write after the enjoyment of a Christmas dinner. The roast beef of Old England will cheer him up.

LONDON, November, 1859.

EDITORIAL.

WE have often thought of speaking on a subject which has not as yet, to our knowledge, received any attention in the *journals*, but in *practice* much more than it deserves; we allude to "picking out plugs." Too much of it has been done, but doubtless some errors have occurred on the other side. We know of a great many dentists who are in the habit, when a new patient applies to them to get his teeth examined, or a plug inserted, of critically examining all the rest of the plugs in the teeth of the patient without solicitation, exclaiming, in the most emphatic manner, "*That's imperfect!*" "*I am astonished!*" "*Who plugged your teeth?*" "You certainly cannot be aware of the condition your teeth are in, or you would not let them go in this way; the plugging is a deception." We know there are many honorable exceptions to this, or we would not send so many of our patients to other dentists, both at home and abroad, as we are in the habit of doing, to get their teeth attended to. But sometimes we have been caught, because we have judged of strangers by their work. It is not good work alone that makes a den-

tist reliable. But we do not believe, as the dental ethics have it, that one dentist, as the rule governs medical men, must not condemn another's work, no matter how badly it has been done, for fear of exposing a brother practitioner. It is the duty of the dentist to give an honest opinion of an operation to a new patient, when solicited; but if it be an old patient, it is his duty to keep them informed from time to time, as they apply to him, of the exact state of their teeth. On account of a want of discrimination on this point, many patients, when applying to us for the first time, charge us not to do more than they point out to us. Their previous experience has taught them this precaution. We are operating for a lady at present whose case is worth narrating. Fifteen years ago we operated for a young lady, one of a large family, on whom we had been attending for some time. We plugged the approximal surfaces of the four superior bicuspid and the posterior surfaces of the canine teeth; quite large cavities, much larger than was usual for dentists to plug at that time. Her teeth were in a rapid state of decay. We had also plugged a number of cavities elsewhere in the mouth—some of the back teeth—with tin foil. We had also plugged the approximal surfaces of the lateral incisors and front incisors, but partially filed out the approximal cavities of the large front teeth, remarking at the time that these surfaces should be watched from time to time, and if they gave any signs of future decay, they could then be plugged. It so happened, about six years after these teeth were plugged, that the same lady required a tooth extracted. But knowing that we did not administer ether, she applied to a distinguished advocate of that humane practice. The tooth was extracted satisfactorily; but, without solicitation, her teeth were all examined, the plugs were pronounced "so soft that they could be picked out with a bristle, and the approximal surfaces of the front teeth were so badly decayed that unless they were plugged immediately she would lose them, and that all the plugs must be renewed at once." This astonished the father, who accompanied the daughter, very much indeed, as it was the first time he had heard any complaints about our operations, and we had done a good deal for his family. The father remarked that if the work were to be done over, it must be by the one who had first operated for the patient. They called upon us in a few days, and we requested to examine the teeth of the young lady. We examined, as we had done perhaps once a year before for five or six times, and pronounced all right. The old gentleman rose from his chair, who up to this time had been silent, and remarked that "there must be something wrong; surely those plugs at the sides of the teeth must be soft, and the front teeth require plugging badly." We remarked, "Oh, no; look at them," taking at the same time a little pumice on a stick and rubbing off a gummy deposit which had accumulated upon the plugs for want of attention in cleansing on the part of the patient; "you can see that the gold is hard and polished," as we scraped over it with a steel instrument also.

"Those plugs have been so for years," we remarked, "and doubtless they will remain for years to come without change, as the fluids of the mouth have undergone a change since the teeth were plugged; there is no disposition as yet to decay, nor will there be unless the health of the patient changes." The front teeth have not yet decayed, but the patient suffered this summer from a protracted attack of diarrhœa, since which time some new places of decay have appeared, but only one small cavity occurred alongside of the second right superior bicuspid plug, but which did not damage it. This case goes to show how a dentist may be deceived, and how much damage he does to his profession in exciting suspicion on the part of patients as to the honesty of their opinions or motives.

We believe, in this case, the dentist was deceived by the gummy deposit on the plugs, and that the unfavorable results sprang from his habit of examining teeth without due consideration. We have long since been well enough acquainted with the dentist to believe that he is not willfully dishonest, but had fallen into a bad habit. It also goes to show that we must not abandon badly-looking teeth, for young persons especially, when they apply to us, as nature may do much for them if we do our duty; and that tolerably good work, under such circumstances, may last longer than we could anticipate. If we had not had the opportunity of watching this case so long we would not have regarded it as of so much importance. We have plugged many teeth since, and we believe much better, that have long since decayed out. It also goes to show that, for the time being, the opinion of the dentist, as the vicissitudes of the mouth are so great, is of extreme uncertainty.

J. D. W.

DENTAL JOURNALS.

AGAIN resuming this subject, we must say, it is strange that the assertion should need making—stranger still that it should need defending—that the description of a theory, or mode of practice, loses none of its force by being properly expressed! Language is truly a vehicle for the conveyance of thought, and the more perfectly it is understood by a writer, the more instructive and attractive he becomes. With it the sphere of usefulness of a feeble intellect is enlarged, and the boundaries of a powerful one become unlimited, exerting its influence alike, not only in its own day and generation, but also in succeeding generations for centuries and centuries. Thus, ancient and modern writers, who have long since passed to "that undiscovered country, from whose bourn no traveler returns," instruct and delight us as they did their contemporaries.

Occasionally, it is true, those who cultivate an intimate acquaintance with language become so infatuated with the study, or their range of intellectual power is so limited, that they fail to perceive that it is only the

means to a certain end, viz., the extension of knowledge. Worse than this, it is too often employed by unscrupulous writers, who have a perfect command over it, to pervert truth; at the same time, every candid mind must admit, that even *truth* loses much of its power by being clothed in an uncouth, and incomprehensible garb. Who will deny, that those efforts which evince a thorough mastery of a *subject*, and a perfect command of language, improve and please one; and, on the other hand, that a communication in which the language is so involved, and confused, that it is impossible to comprehend the writer, disappoint, if they do not disgust the reader?

That our literature may bear a *rigid* comparison with the highest literary standard of other professions, and that the observations we present for consideration may be perfectly understood, proper attention must be paid to the language in which our thoughts are clothed. The aim of all should be, to make the medium through which their thoughts are conveyed as clear and transparent as the air they breathe. This, however, is not to be accomplished by adopting a stilted, or affected style, or the employment of ambiguous terms, but by using those words best calculated to leave no doubt in the mind of the reader as to the meaning of the writer.

While care should be exercised to employ the language best adapted to give clearness and precision to the views advanced, it must be borne in mind, that nothing is more calculated to degrade the literature of a profession, or alienate from a writer who indulges in such practices, the sympathy and favor of those whom none can reasonably condemn, (the educated and refined,) than the use of cant, and obscene phrases, in the contributions to its magazines; and it is an unquestionable fact, that such *ornaments*, are not demanded in the elucidation of a difficult point in science, or the description of a new mode of practice.

The defects in our literature are not confined, however, to language alone. There is, painful to say, too often evinced on the part of some writers, a very superficial acquaintance with the subjects they attempt to treat; there is a constant repetition of the same themes, from different pens, with no *addition* in *matter* and no *improvement* in *style*; and not unfrequently contributors favor the profession with repeated rehashes of their former communications, until the question naturally arises, when will they tire of climbing and reascending the same ladder, crossing and recrossing the same bridge?

The correctness of these assertions will certainly not be controverted by those who are thoroughly conversant with the subject.

The solution of this is found in the indisposition on the part of such persons to prosecute a regular and extended course of study, investigation, or experiment. Relying entirely upon unassisted genius, some affect a perfect contempt for the treasures of science and art which the observation and experience of others have accumulated, and imagine that

they can, by sudden irradiations of intelligence, comprehend by intuition that which, to be thoroughly mastered, must be through hard study, long-continued and constant observation. A more fallacious idea, or a more fatal bar to the progress of the individual, or the profession, could not be entertained than this; and, in addition, there is no estimate more likely to be erroneous than the value which a man places upon the force of his own genius. Cicero justly says, that not to know what has been transacted in former times is to continue always a child; and this remark is as true in science as it is in history; for if no use is made of the facts that have been recorded, science must ever remain in its infancy. In the language of Sir John Herschel, "Science is the knowledge of many, orderly and methodically digested and arranged, so as to become attainable by one."

That writers, therefore, may give evidence that they have not ceased to grow—that they may not ascribe to themselves the originality of discovering facts long established, or waste that time which might have been profitably spent in other directions, upon investigations and experiments, the results of which are well known and unquestionable, they should, even if qualified by genius for great undertakings, make themselves acquainted with all that has been and is continually being added to the science by others.

The mere study of books, however, is not sufficient; having mastered their contents, original investigation and experiment should follow as a necessary sequence.

The present wants of the profession demand a more extended range of subjects than has generally prevailed heretofore. To meet this, in addition to communications from occasional contributors, there should be connected with each magazine a corps of collaborators, each of whom, conversant by systematic study with the general and collateral science and art of the profession, should select and confine himself to a special department; instituting experiments, and investigations, and carefully describing the results in a regular series of articles. Thus, either anatomy, physiology, chemistry, principles of dental surgery, operative dentistry, or mechanical dentistry, if made a special object of study, and prosecuted with vigor and perseverance, could not but act favorably upon our literature, and be the means of disseminating valuable information, and correcting many erroneous views.

Conscious that there is in our profession, scattered all over this country, a latent but powerful talent, that is capable of accomplishing, and will accomplish the great work to be done, we appeal to them, wherever they may be, whether enjoying the advantages of constant intercourse with their fellow-practitioners in large cities, or cut off from such stimulus to exertion by the isolation of country practice, to come forward and discharge the duty they owe to their profession. To do this some sacrifice of ease and pleasure must be made; but if a proper disposition of time is made, no profession affords greater facilities for prosecut-

ing a regular and systematic course of study than dentistry. The medical practitioner, who is liable to be called upon at any moment, as a general thing, cannot have fixed hours for study, and he must proceed as opportunity affords, accomplishing here a little, and there much; but the dentist, whose duties cease with the close of day, has the night before him, is not liable to interruptions, and it is for him to decide, whether that time shall be devoted exclusively in responding to social claims, in ease and pleasure, or a certain portion of it be spent in scientific investigations. Will he not adopt as a motto, "The toil by day—the lamp by night"?

In conclusion, we have spoken thus freely and openly, because we regard the present, and future interests, of the profession more than we fear ridicule or personalities. The last we have neither inclination or time to respond to, and desire it to be distinctly understood, that writing on general principles, we neither think of, or aim at individuals. J. H. M'Q.

REVIEW OF DENTAL LITERATURE AND ART.

BY J. H. M'QUILLEN, D.D.S.

WISDOM TEETH.—Of all the teeth that man possesses, none, as a general thing, are in worse repute with practitioner and patient than the wisdom teeth. The want of confidence in the perfection of structure, and the stability, and usefulness of these organs, is so universal, that the majority of patients and many operators deem it unadvisable to make any effort toward their preservation, when affected by decay. It is supposed that the proclivity to decay manifested by these teeth, is due to the fact that, completed at a period when the life forces are not as active in their operations as when the other teeth are forming, there is a comparative imperfect development of structure as a necessary consequence. The fallacy of this view is so apparent that it requires no argument to refute it. The correct explanation, we think, will be found not so much in a comparatively imperfect structure, as in the length of time occupied by the teeth in the process of eruption. Frequently, a period of from six months to two years will elapse between the emergence of one of the cusps of the tooth from under the gum and the complete eruption of the crown. During all this time a flap of gum is resting upon, and has a tendency to retain foreign substances in contact with the masticating surface; these decomposing, acids are developed, and the disintegration of the enamel and dentine follows as a necessary sequence. Having long recognized this as a prolific cause of the decay of this organ, we have for more than ten years pursued the following course. The moment that one of the cusps of a wisdom tooth is observed emerging from under

the gum, with a keen-edged lancet a circular incision is made round the tooth, so as to completely dissect away all the gum, uncover the grinding surface, and permit the tooth-brush to play over and remove substances that may accumulate there. Any cavities that are detected, even if small, are filled at once; but, remembering that the roots of the tooth are not fully formed, (and that if the usual pressure is employed in consolidating a filling, it would be calculated to excite periostitis, and eventually cause the death of the pulp,) the gold is introduced with as slight an outlay of force as possible to secure the filling from coming out, apprising the patient at the same time, that the operation is only intended to serve a temporary purpose, and should be removed and thorough filling introduced as soon as the fangs are fully formed. The adoption of this course has been followed by the happiest results. Teeth have been saved, and are now useful organs, that otherwise would have been lost long since, if a different course had been pursued.

The operations upon the wisdom teeth and the molars, generally, are frequently attended with considerable difficulty, on account of the non-elastic character of the tissues surrounding the mouth, and the inability of the patient to expand the jaws sufficiently to afford the operator a perfect view of the cavity, or adequate room for manipulating. This may be remedied to a great extent by requesting the patient to carry the lower jaw as far over to the right or left side as possible, (according to the side the affected tooth is on,) and retain it there during the operation. Usually a fair view of the cavity can be obtained, ample space is afforded for manipulation, and the mouth of the patient need not be stretched so unmercifully as it sometimes is.

DR. MAYNARD'S METHOD OF EXTIRPATING THE PULP.—We present the following description of Dr. Maynard's method of treating and extirpating the dental pulp on account of the care and thoroughness evinced throughout, on the part of the operator. The article containing the description is from the pen of Dr. Westcott, and originally appeared in the *Journal of Dental Science*, vol. vii. p. 286. This extract is from *Harris's Principles and Practice of Dental Surgery*, p. 339:—

“He takes white wax and works it into cotton or lint till it is thoroughly mixed together. With this he fills the cavity in the tooth. But, before doing this, he exposes the nerve as much as possible, applies the arsenic, and caps the orifice with a plate of lead, of a cup shape, the convex side outward. While this is kept in place, he fills the cavity with cotton and wax, very carefully and perfectly, in such a way as not to shut in and compress any air which might press upon the nerve. On removing this packing, in a case which Dr. Westcott had an opportunity of witnessing, he says, I was surprised to see that his preparation had been kept perfectly dry, although it had been there twenty-four hours. After he removed this packing and the preparation, he proceeded to remove the nerve. *Instead of attempting to do this at once, he began by cutting on every side of the orifice, so, much enlarging it as to be*

enabled to remove the nerve without pressing the contents of the cavity upward. It was to us a matter of interest to examine the instruments used for removing the nerve. Some of his probes were made from the main-spring of a watch, by filing or grinding them sufficiently narrow to enter the smallest space which he wished to probe. In this way he secures the most perfect spring temper, a point not easily attained in so firm an instrument as to a probe adapted to this purpose. These probes were bearded by cutting them with a sharp knife, the beards pointing backward. With different sizes of these [and other] probes, and by enlarging the cavity from time to time, he removes the nerve to the extremity of the root."

DENTAL ENTERPRISE—OCTOBER.

During the past year, Professor Austin has published in this paper a series of valuable communications on the metals employed in the practice of dentistry. From these the following is selected:—

PURPLE OF CASSIUS.—When protochloride of tin is added to a dilute solution of gold, a purple-colored powder falls, which has received that name. It is obtained of a finer tint when protochloride of tin is added to a solution of the sesquichloride of iron, till the color of the liquid takes a shade of green, and the liquid in that state added, drop by drop, to a solution of sesquichloride of gold free from nitric acid, and very dilute. After twenty-four hours a brown powder is deposited, which is slightly transparent and purple red by transmitted light. When dried and rubbed to powder, it is of a dull blue color. Heated to redness it loses a little water, but no oxygen, and retains its former appearance. If washed with ammonia on the filter while still moist, it is dissolved, and a purple liquid passes through, which rivals the hypermagnate of potash in beauty. From this liquid the coloring matter separates very gradually, weeks elapsing before the upper strata of the liquid becomes colorless; but it is precipitated more rapidly when heated in a close vessel between 140° and 180° . The powder of Cassius is insoluble in solutions of potash and soda. It may also be formed by fusing together 2 parts of gold, $3\frac{1}{2}$ parts of tin, and 15 parts of silver, under borax, to prevent the oxydation of the tin, and treating the alloy with nitric acid to dissolve out the silver; a purple residue is left, containing the tin and gold that were employed.

The powder of Cassius is certainly, after ignition, a mixture of binoxyde of tin and metallic gold, from which the gold can be dissolved out by aqua regia, while the binoxyde of tin is left; and the last mode of preparing it favors the idea that its constitution is the same before ignition; but the solubility of the unignited powder in ammonia, and the fact that mercury does not dissolve out gold from the powder when properly prepared, appear to be conclusive against that opinion. The proportions of its constituents vary so much that there must be more than one compound; or, more likely, the coloring compound combines with more than one proportion of binoxyde of tin. Berzelius proposed the theory that the powder of Cassius may contain the true protoxyde of gold combined with sesquioxycide of tin,— $\text{AuO.Sn}_2\text{O}_3$,—a kind of combination containing an association of three atoms of metal, which is exemplified in black oxyde of iron, spinell, gahnite, franklinite, and other minerals, and which we have repeatedly observed to be usually attended with great

stability. A glance at its formula shows how readily the powder of Cassius, as thus represented, may pass into gold and binoxide of tin; $\text{AuO} \cdot \text{Sn}_2\text{O}_3 = \text{Au} + 2\text{SnO}_2$. The existence of a purple oxyde of gold, AuO , is not established; but it is probably the substance formed when a solution of gold is applied to the skin or nails, and which dyes them purple. Paper, colored purple by a solution of gold, becomes gilt when placed in the moist state in phosphureted hydrogen gas, which reduces the gold to a metallic state.

Pelletier gives the following method of preparing a purple of Cassius of constant composition: 20 grammes of gold are dissolved in 100 grammes of aqua regia, containing 20 parts nitric to 80 parts of commercial hydrochloric acid; the solution is evaporated to dryness over the water-bath; the residue dissolved in water; the filtered solution diluted with 7 or 8 decilitres of water, and tin filings introduced into it; in a few minutes the liquid becomes brown and turbid, and deposits a purple precipitate, which merely requires to be washed and dried at a gentle heat. The purple thus prepared contains in 100 parts: 32.746 stannic acid, 14.618 protoxyde of tin, 44.772 aurous oxide (Au_2O_3) and 7.864 water. The precipitate obtained by treating sesquichloride of gold with pure protochloride of tin is always brown. To obtain a fine purple precipitate, the chloride of gold should be treated with a mixture of protochloride and bichloride of tin. The following process gives a fine purple: *a.* A neutral solution is prepared of 1 part of tin in hydrochloric acid; *b.* a solution of 2 parts of tin in cold aqua regia, (1 part hydrochloric acid to 3 nitric,) the liquid being merely heated toward the end of the process that it may not contain any protoxyde of tin; *c.* seven parts of gold are dissolved in aqua regia, (6 hydrochloride to 1 nitric,) and the solution, which is nearly neutral, diluted with 3500 parts of water. To this solution *c* the solution *b* is first added, and then the solution *a*, drop by drop, till the proper color is produced. If the quantity of *a* be too small, the precipitate is violet; if too large, it is brown. It must be washed quickly, so that the liquid may not act upon it too long. It weighs $6\frac{1}{2}$ parts, (Bouisson.)—*Graham's El. of Inorganic Chem.*

As the shade of the purple of Cassius varies according to the proportions of the gold or tin used, and to obtain the particular shade that is desirable for making gum color, it requires extreme care in the manipulations and the exact proportions.

Dr. W. Welch, of this city, who has had considerable practice in preparing the purple of Cassius, fritt, and gum color, has very kindly furnished us with the following formula:—

Pure silver	240 grains,
Abbey's gold foil	24 "
Tin foil	17 "

melted into button. Melt the silver and gold in a crucible, keeping them well covered with borax; then add the tin, and quickly pour into water; collect the pieces, melt, and again pour in water. It should be remelted at least four times, in order that the metal may be intimately mixed together. Collect the pieces, and, having perfectly cleaned them from borax, place them in a glass vessel, and add 1 part water and 2 parts chemically pure nitric acid; expose to gentle heat on sand bath, frequently stirring with glass rod. When the silver is all dissolved, allow it to stand for an hour or two, until the purple is precipitated; then pour off the acid containing the silver, and wash the precipitate with warm water; again add nitric acid to the precipitate, and subject it to heat,

frequently stirring it, that the acid may come in contact with every portion of precipitate, and dissolve any silver which may have escaped the first acid. After allowing the purple to precipitate, pour the acid through a filter into a clean vessel, and test with salt, which will show if the least silver is in the acid; when the acid will no longer show the slightest trace of silver wash the purple carefully with warm water; and, after being dried, it is ready for use.

Flux No. 1—Glass of borax	2 drachms.
Salts of tartar	2 “
Feldspar	1 ounce.
Gum fritt—Purple of Cassius	8 grains.
Flux, No. 1	175 “
Feldspar	700 “

Then you will grind the purple and flux together in a wedgewood mortar, as fine as possible; they should be ground for three or four hours; then add the spar, a little at a time, also grinding very fine; the fritt is then to be packed into a clean white crucible, the inside of which should be washed with silex, to prevent the fritt from adhering when it is fused; lute a cover on the crucible, and place it either in the muffle of a furnace or in a clear coal fire, free from gas, until it is completely fused; this will take from fifteen minutes to one hour, dependent upon the heat of the furnace; after cleaning the fritt from silex, break and grind not very fine; mix 1 grain of fritt and 2 grains of spar, 1 grain of fritt and 3 grains of spar, 1 to 4, 1 to 5, 1 to 6; enamel then on a piece of the body, and bake to test the color. A gum color, when prepared in this manner, can be fully relied upon, as it will not fade or alter in the slightest degree when exposed to the most intense heat.

DENTAL REVIEW, LONDON—OCTOBER.

The extracts below are from a lecture by Dr. Richardson, on “The Narcotic Remedial Series, their Action and Application.” He remarks:—

“The use of medicinal substances of the narcotic class, in such way as to produce complete insensibility, is of ancient date. Various facts connected with this subject have been collected, with considerable learning and interest, by Dr. Simpson, the late Dr. Snow, and other writers. From the writings of these, especially the last one named, I may introduce a few introductory observations, which will not only be of interest to you, but useful as indicating by what steps the method of producing anæsthesia, locally and generally, has progressed until the present day. Dioscorides, one of the old Greek physicians, describes that a decoction of mandragora was given to patients by the mouth to prepare them for operation. He also states, that a substance called ‘morion’ was used for a similar purpose. A drachm of it eaten in a cake, or in other food, took away the use of reason, and the patient would sleep, in the attitude in which he was left eating, for the space of three or four hours. Medical men, he adds, use it when they have recourse to cutting or burning.

“Pliny, in like manner to Dioscorides, speaks of mandragora, and after stating that the juice of the leaves is more potent than the preparations made from the root, says that to procure sleep for painless operations it is necessary only for some persons to smell the medicines; from which remark it may be inferred that narcotism by inhalation is a practice also of ancient date. But the most interesting and at the same time

the most striking passage is by Apuleius, who informs us that any one who may be about to have a limb mutilated, burnt, or sawn, may drink half an ounce of the wine of mandragora, and while he sleeps the member may be cut off without pain or sense.

"At a period perhaps quite as early as that which we have glanced at, Indian hemp was in use for the same purpose by the Chinese. Dr. Snow infers that the fumes of the hemp were inhaled for producing sleep, and his view is supported by a remark in Herodotus, to the effect that the ancient Scythians were accustomed to inhale the fumes of burning hemp to produce intoxication, as well as by the fact that the Hindoos have smoked hemp with the same object for ages past. Omitting notice of certain other supposed means of causing anæsthesia, invented in the middle ages, I would note an anecdote, quoted first by Dr. Silvester and afterwards by Dr. Snow, which shows that in the seventeenth century anæsthesia was practiced by means of a narcotic draught:—

"Augustus, King of Poland and Elector of Saxony, suffered from a wound in his foot, which threatened to mortify. The court medical men were opposed to the operation of amputation; but during sleep, induced by a certain potion surreptitiously administered, his favorite surgeon, Weiss, a pupil of Petit, of Paris, cut off the decaying parts. The royal patient was disturbed by the proceeding, and inquired what was being done, but on receiving a soothing answer he again fell asleep, and did not discover till the following morning, after his usual examination, that the operation of amputation had been really performed."

"By accident and custom a variety of narcotic substances have been used to produce entire insensibility and forgetfulness of external impressions. The smoking of opium to the production of perfect anæsthesia will occur to all as a prevalent custom. In the early days of Scottish history nightshade was used as a stupefying agent in like manner, and it is said that darnel, or, as it was called in Italy, *imbriaca*, a plant which grows among corn, was at one time used in the form of cake as a powerful drunken stupefier. There is some indirect proof also that these agents have been occasionally employed previous to the performance of operations. The practice, nevertheless, has never been reduced to a system till now, nor was anything definitely suggested for the production of anæsthesia as a process until the early part of the present century.

"The credit of proposing narcotism in surgical operations, after the manner in which it is employed at the present time, belongs to one of our own great countrymen, Sir Humphrey Davy. In the researches of this distinguished philosopher he made a series of experiments on the effects of a gas called nitrous oxide. There is not in the history of physiology any set of inquiries more valuable than this. Having taken nitrous oxyde himself, and exhibited it to men and animals, Davy, in describing the effects of the agents, uses this expression, which I will read to you from his own work: 'As nitrous oxyde, in its extensive operation, appears capable of destroying pain, it may probably be used with advantage during surgical operations in which no great effusion of blood takes place.' In this sentence we have the text of all that has been since performed in the study of anæsthesia and anæsthetics.

"It is remarkable, however, that a long time elapsed before the meaning of Sir Humphrey Davy's labors were understood or put into practice. With the exception of a suggestion made by a country practitioner in England, as to the propriety of employing carbonic acid as a sleeping agent, we find no progress until the year 1844, when an American den-

tist, Mr. Horace Wells, on seeing Mr. Colston go through the well-known experiment of administering nitrous oxyde as an amusement at a popular lecture, asked the said Colston to administer the gas to him while another dentist extracted a tooth. This was on December the eleventh, and this was the first operation in our day performed after the removal of sensibility. Wells, elated with the application of the gas as suggested by him, tried to introduce it into general practice in operations. Thus used, it failed in his hands, probably because he was not sufficiently skilled as an experimentalist, and was not sufficiently acquainted with the properties of the agent.

"Soon after this event a new phase is opened. Wells communicated the facts he had learned to Morton, another dentist, and on the 30th of September, 1846, Dr. Morton administered sulphuric ether to a patient, and extracted a tooth without pain. This was the first application of ether vapor, but it had previously been ascertained and proved that this vapor had the power of causing effects very similar to those caused by the nitrous oxyde."

After referring to the controversy between Drs. Morton and Jackson, relative to the priority of suggesting etherization as a practice, and alluding to the introduction of chloroform by Dr. Simpson, of Edinburgh, Dr. Richardson directs attention to the narcotic effects of the common puff ball. The inapplicability of this substance in dental operations will be apparent to every one; but its employment in vivisections upon the lower animals will remove many of the objections to that mode of interrogating nature:—

"In 1853 I made the observation that the fumes arising when the lycoperdon giganteum, or common puff ball, is exposed to heat, produce on inhalation a very perfect anæsthesia. The fumes of this fungus have indeed been applied for a narcotic purpose from the earliest days in the history of this country, *i.e.* for stupefying bees before robbing the hive of the contained honey. The custom in many parts of this country has been to cover up the hive, place a piece of burning fungus beneath it, allow the smoke to pervade the hive for a few minutes, then to raise the hive, shake out the occupants, which are rendered by this process insensible, remove the sweet treasure, and return the sleeping insects back to their homes. In a little time they return to consciousness, and, fed during the winter, are ready to resume their busy work with the returning flower months. It was the simple story of this mode of narcotizing bees that led me to experiment with the lycoperdon. I soon found that I had a most valuable narcotic, possessing all the narcotic properties of chloroform without many of its risks. I have been made insensible by the smoke of the lycoperdon, and Dr. Snow, on one occasion, inhaled it with me until he had lost all consciousness of sensation. Since 1853 I have narcotized more than a thousand animals with this vapor either for operation or cutting experiment, and always with success. It has also been used by various other experimentalists.

"I place before you a portion of this fungus ready for use. I will burn a little of it that you may smell the fumes evolved. When I am applying it in animal experiments, I place the animal in a chamber, to the outer surface of which there is attached a small iron box, perforated beneath and having a pipe opening into the box above. The animal is placed in the chamber after the fumes are pretty freely distributed through it. In

from four to seven minutes the creature is entirely insensible, and will remain so often for half an hour or an hour without need of more narcotic.

"When I inhale this vapor myself, and I have done so many times, I draw the fumes through a hookah pipe, letting them first pass through potash water, to clear them of carbonic acid. After three or four minutes' inhalation the mind begins to lose itself in visionary fancies, and soon afterwards the insensibility is complete. There is less of the drunkenness produced by ether or even by chloroform, but, as with both these narcotics, recovery is often attended by vomiting. There are points in the action of this narcotic peculiar to itself: 1st. That the action of the narcotic is very permanent as compared with chloroform, ether, or any other similar body with which we are yet familiar. Thus I have seen an animal, when over-narcotized, remain insensible for nearly an hour without repetition of the dose. 2d In recovery, the insensibility is not equally restored, the parts farthest from the heart remain insensible longest. 3d. The action of the heart seems invariably to outlive the respiration; I mean this remark to refer to instances where the narcotic is administered in an overdose, or for a long period, so as to produce death. Lastly, the inhalation of the narcotic, while it does not modify either the fluidity of the blood or the coagulating power, produces a redness of the venous blood, rendering it like the arterial in color. These are the points of difference; in most other respects this volatile narcotic possesses the properties of chloroform."

BRITISH JOURNAL OF DENTAL SCIENCE—OCTOBER.

OBSTINATE CHRONIC DISCHARGE FROM THE NOSTRIL REMOVED BY EXTRACTION OF A CARIOUS TOOTH.—Mr. Fleischmann, of Wrexham, relates (*British Medical Journal*) the following example of this: Miss Rose S., a little girl aged five years, had been troubled for about three months with a constant though not profuse discharge of slightly purulent mucus from the right nostril; it appeared to be the sequel of a cold. The mucous membrane, so far as it could be examined, was healthy, and there were no indications of any morbid growth. She was ordered a strong injection of gallic acid, and took concurrently small doses of the sesquichloride of iron. The only advantage she derived was, that the discharge lost its purulent character; in amount it remained the same, though the treatment was long persevered in, and other local astringents tried. I suspected that there must be some undiscovered local irritation. Not being able, on careful examination, to find anything wrong in the nasal passages, I looked to the condition of the teeth, and finding the right upper canine carious, removed it. The discharge was much lessened on the next day, and in the course of a day or two disappeared altogether. This short account may, perchance, afford a useful hint to some one; at any rate, it is a good illustration of reflected irritation, and teaches us that oftentimes the *fons et origo mali* is not just where we might expect to find it.

BRITISH JOURNAL OF DENTAL SCIENCE—NOVEMBER.

THE remarks below are taken from a lecture, introductory to a course on Dental Surgery, by DR. GRIMSHAW, of Dublin:—

"It matters not what may be our attainments in any branch of learn-

ing, inquiry must still go on; and although the present age can boast such an accumulation of learning, the result of the labors of men who have devoted their life and their energies to the elucidation of often a single point, yet each advance of science opens only a wider field for inquiry, and points out phenomena, hitherto unobserved, for investigation. And I would here impress upon you the importance of accurately observing, and systematically and correctly recording, any fact which, during your studies now, or in the course of your practice hereafter, may suggest itself to you at the time as worthy of notice.

"An examination into such minute structures as those of the teeth, I need hardly remind you, cannot be carried on without the use of the microscope. By its assistance you will satisfy yourself on many points, about which you must otherwise have remained in doubt; and the more you search into the wondrous arrangements by which nature attains her ends, the more importance you will attach to the use of the microscope, and the more indispensable you will find its aid.

"Precise anatomical views of the form, character, and relative position of the several organs of the mouth, jaws, and face, as well as accurate mechanical views of their combined and separate action, must be acquired before a practitioner can hope to earn for himself anything like reputation. It must always be borne in mind that *dental* surgery is a branch of surgery in *general*, and that *principles* must be learned from the latter before the *practice* of the former can be rational. Nevertheless, dental surgery must be a distinct study.

"My object in making these remarks is simply to give such a direction to your studies as a practice extending over many years enables me to assure you is requisite for attaining excellence in the profession. And be assured, gentlemen, of this, that the time is not far distant when it will be *imperative*, on all who intend to devote themselves to *dental* surgery to be well acquainted with the theory and practice of surgery in *general*."

At a period when a good working microscope, answering all practical purposes, can be obtained for a moderate sum, (\$35,) it is a matter of regret that this instrument is not in more common use with us. Up to the present the profession in America has been content, as a general thing, to depend upon books for their knowledge of the microscopical structure of the teeth. Taking it for granted that the statements of the European observers are correct, little or no effort has been made here to confirm or disprove them. Admirably executed as the diagrams in our text-books are, it is difficult to conceive of a more unsatisfactory method of studying the anatomy of bones and teeth than to depend upon them alone. Having had an experience in that direction, we can heartily sympathize with those who are confined to such a course. They are excellent guides, but the student who really desires to understand such things should have access to a good instrument to aid him in his studies.

We shall never forget the impression made on our mind, when for the first time an opportunity was afforded of examining sections of bone and teeth, and must honestly confess that prior to that period we had not an accurate conception of their minute structure.

AMERICAN DENTAL REVIEW—NOVEMBER.

In this number, Dr. Leslie, the editor and proprietor, informs his subscribers that, in closing the second volume of the *Review*, he resigns the editorial duties to an association of gentlemen whose names will not appear, but who are all practicing dentists. Dr. L., however, will have charge of the publishing department.

To those gentlemen, whoever they may be, in entering upon their new and responsible position, we extend a courteous greeting and the hand of professional brotherhood, trusting, if in the faithful discharge of their duties as *reviewers*, they should be made the subject of ridicule or personalities, that remembering such things only harm those who indulge in them, they will permit them to pass without comment, and that, unaffected by the one, or intimidated by the other, wherever error rears its bold front, defects exist, or abuses prevail, (carefully avoiding persons, and combating these alone,) they will "Up guards, and at them!"

"AMERICAN DENTAL ASSOCIATION.—In view of the probable permanent organization of the *American Dental Association* next summer, and in accordance with the resolutions offered by Dr. Suesserott, and adopted by the Association, at its formative meeting, the writer deems it expedient and advisable to call upon the profession, in the Western States, to take the initiatory steps to meet the exigencies of the case; to call State conventions, and organize State societies, as early as practicable. For instance, suppose a call for a convention of the dentists of the entire State of Missouri, to meet at Jefferson City, on the first Thursday in May, 1860, be made, to organize a State society, and in said call urge upon the dentists severally and individually to respond to the call. The country dentists of Missouri are the men to be specially benefited by the movement, for the City of St. Louis has its organization, and is entitled to its representation.

"Let Illinois also call a State convention, to meet on the same day, or sooner, if they elect, in the City of Chicago, and form a State society.

"Now, the writer knows that some will argue that Missouri has her City Society, and Missouri, Illinois, Iowa, Michigan, and Wisconsin have their Western Society. True, but who are the men who attend and support these societies? In St. Louis not one-third of the dentists are members of the City Society. And in the Western Dental Society, who do we generally meet from the country—of Missouri, Iowa, Wisconsin, Michigan, or even Illinois? Who? Alas! who, of all the dentists in the State of Illinois, Chicago included, generally attend the meetings of that society? *One man does*, regularly, and he is a host. Then, as Chicago has no society, let the State convention be held there; and let Iowa, Arkansas, Texas, and such other States as have not already organized, do so at once.

"Let the several provisions, principles, and features of the proposed constitution be discussed, delegates elected to attend the meeting in Washington City, D. C., on the last Tuesday of July, 1860, and let such delegates be fully instructed how to vote on the adoption of the constitution, and all kindred topics. * * *

ST. LOUIS."

PERISCOPE OF MEDICAL AND GENERAL SCIENCE IN THEIR RELATIONS TO DENTISTRY.

BY GEO. J. ZIEGLER, M D.

On the Structure and Relations of the Nervous System at the Periphery, etc. By JOHN G. S. COGHILL, M.D. In our last number we gave some extracts from the *Lancet*, upon the above, but as the following conclusions which appear in the same journal of a later date afford a still more comprehensive view of the subject, we transfer them to our pages.

"Notwithstanding the many very elaborate and extensive investigations, and the numerous important and successful results which have attended them, which I have referred to under the several divisions of the subject which has engaged our attention in these lectures, yet, both from its nature and extent, the stage at which we have arrived in our knowledge of it, though in some parts complete, is still in a few so deficient, and in many so transitional, that it is not without difficulty we can form, with any degree of satisfaction, more than general conclusions as to the anatomical and physiological relations of the peripheral nervous system, which, while they would be consistent with all the facts research has hitherto been able to place at our disposal, would also stand the tests which may be applied to them by subsequent investigations. I have, however, anticipated, to some extent, many general observations derived from a consideration of the subject *in extenso*, which I might otherwise have appropriately stated here, in the remarks I have made when describing to you in detail the several parts of the subject. I must, however, as the results of the considerations which have occupied our attention, state the following propositions as briefly as possible:—

"I. Toward the periphery, the primitive nerve-fibres generally assume a plexiform arrangement extending throughout the organ or texture, in which they ultimately terminate; and it seems also that the delicacy and extent of this *terminal plexus* has a relation to the degree of sensibility possessed by the part.

"II. It seems more than probable that the primitive fibres form loops or arches also, at a point still farther in their course toward the periphery, these having apparently been often mistaken by some of the earlier observers for their ultimate disposition.

"III. The primitive nerve-tubules, into which the nervous bundles resolve themselves, ultimately break up, in most cases, into elements still more minute, the extent of this subdivision seeming also to vary with the sensibility of the tissue in which it occurs.

"IV. These primitive fibres also appear, in some instances, independently of subdivision, to become attenuated as they approach their final termination, which seems to depend upon the gradual deprivation of their medullary sheath, which, being probably of the nature of an isolating medium, its absence brings the axis-cylinder, probably the proper conducting portion, of the nerve-fibre in immediate contact with the elements of the adjacent structures.

"V. There is found also as a character of the nerves of special sense, with a very doubtful exception in the case of the olfactory, that toward

their peripheral expansions they have ganglionic cells developed on their fibres—i.e. that these fibres become connected with bipolar nerve-cells.

“VI. The doctrine of the looped terminations of the nerve-filaments, once so universally received, has been shown by more recent observations to be quite untenable. It can only be admitted now, indeed, as a very rare occurrence. We are not, however, warranted probably in discarding these terminal loops so entirely as has been done by some physiologists, so long as their existence is still asserted by some eminent authorities.

“VII. The distal extremities of the nerve-fibres have also been found terminating singly, but in continuity of tissue with the elements of the peripheral structures. This mode of termination by free ends, so to speak, which cannot, however, be strictly regarded as of that nature, is one of very frequent occurrence, and is a view of the nerve-endings which many histologists seem inclined to maintain.

“VIII. The termination of the nerve-filaments by free extremities, without any continuity with the tissues in which they end,—although it seems in many instances, in the nerves of common sensibility, to depend on the structural changes in their fibres, which prevents their being traced beyond a certain point,—must be regarded as that prevailing in the nerves of special sense, where they are found, indeed, continuous with special peripheral structures.

“IX. While the predominance of these general forms of nerve-termination can usually be recognized, yet they exhibit, in different situations, the most varied modifications, frequently so great as to render it difficult, nay impossible, to refer them to any of the above. This gives every probability, therefore, to the correctness of the conclusion, that there is no one individual type observed in the terminal relations of the nerve-fibres at the periphery. Nature, most independent in her choice of forms, appears only to recognize in them the teleological principle, seeking in every instance to effect that ultimate coadaptation of structure and function which ever seems to prevail in her designs.

“X. It may also be asserted as all but fully determined that, while the presence of the simple nervous element, perhaps with some slight adaptation, in the tissue of the organ in which the nerve is distributed, is sufficient, under ordinary functional exigencies of sensibility, yet in the case of the nerves of special sense, where the fibres are required to become the channels of special sets of impressions, there is found developed in connection with their distal extremities certain minute structures, modified and adapted in each case according to the nature of the particular function demanded by them. In these minute peripheral organs only can the particular impressions be initiated, which are conducted by the nerve-fibres to the sensorium. The character, therefore, of the impression traversing a nerve-fibre depends on the nature of its peripheral connections—i.e. with such organs; while the resulting sensation will similarly depend on the nature of its central connections.

“XI. But in the same manner also, in a general sense, all tissues and parts in which nerves end may perhaps be viewed as so many lower forms of such peripheral nervous organs *quoad* their nerves, for in them only can be determined the nature of the impressions conducted to the nervous centres by the latter, and *vice versa*.

“The structure and relations of the nervous system at the periphery is a wide and interesting field of research, in which much yet requires to be investigated.”—*London Lancet*, Nov. 5, 1859.

Regeneration of Nerves.—"It is well known that when a nerve is separated from the nervous centres by a section, on the distal side of its special ganglion, it undergoes a gradual alteration in its peripheric portion, in consequence of which the medullary substance of the tubes entirely disappears. When the peripheric segment unites again with the central segment, the former gradually recovers its normal structure and its physiological properties.

"But it has been asked whether the peripheric portion of a nerve, separated from the nervous centres, remains in this imperfect state as long as the two segments divided by the section have not united. Should, in fact, the generation of nervous tubes in the peripheric segment be considered as a proof of physiological union between this peripheric segment and the central segment of some other nerve which has been artificially approximated, or between the two corresponding segments of the same nerve?

"Experiments were undertaken by Messrs. Philipeaux and Vulpian to settle the question; and the results have been contrary to the opinions generally current on the subject. These gentlemen have seen peripheric segments of nerves, quite separated from the central segment, become extensively regenerated after having undergone complete degeneration. The experiments were made upon dogs, guinea-pigs, and hens, partly on mixed nerves, (the sciatic of guinea-pigs, and median of hens;) on motor nerves, (hypoglossal of dogs,) and on sensitive nerves, (lingual of dogs.)

"It has thus been found that the peripheric segment of a nerve can recover itself, without uniting with the corresponding central segment; nay more, a segment, isolated by two sections both from the periphery and the nervous centres, may present a more or less complete regeneration. The experiment was made on the lingual nerve of a dog, six months old, and examined thirty-eight days after the section.

"When the peripheric segment of a divided nerve has been regenerated without any union with the central segment, and a fresh section is made on that peripheric segment, degeneration will again occur in the whole periphery. This fact was proved by a ten days' experiment on the lingual nerve of a dog which had partly recovered in fifty days. The motor power reappears when the nervous tubes are again seen with all their characters in the peripheric segment of a motor or mixed nerve, which has been separated from the corresponding central segment, and consequently from the nervous centres; and the function is re-established with the regeneration of the nerve. As to the sensitive nerves, (the lingual, for instance,) it may be supposed, by induction, that they also completely recover their integrity. All the animals experimented upon were young."—*Ibid.*

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"On some of the Accidents produced by the Development of the Wisdom-teeth. By M. ROBERT.—The four last molars, vulgarly termed 'wisdom-teeth,' frequently cause, by reason of their slow development various accidents which the treatises on surgery pass by almost without notice. An interesting and useful monograph might be written upon the subject.

"These teeth are short and broad, and have short and straight fangs. They seem to remain behind the others, both in regard to their dimensions and the period of their apparition; so that at first sight, these teeth, which seem to have, so to say, undergone a commencing atrophy, might be expected to make their appearance without inducing irritation. But there are various circumstances which may render this difficult or even

dangerous. Thus, it often happens that at the period of the evolution of the large molar it is found to have undergone deviation. As it is always cut at a late period, the other teeth, situated in front, compress its follicle, and distort and thrust back its alveolus. The tooth is thus often found deviating in front or behind, within or outward. So great is the deviation that the alveolus is occasionally found hollowed out in the ramus of the jaw, the tooth having undergone such a reversion that its crown abuts directly against that of the second great molar. It is easy to see that the eccentric movement executed by the wisdom-tooth at the moment of its evolution, may become, as regards the neighboring teeth, the jaw, mouth, gums, or even itself, the source of various more or less serious accidents, such as osteitis, periostitis, necrosis, inflammation of the soft parts, etc. This will be easily understood if we consider the enormous power exerted by the tooth, the effects of which cannot be better compared than to those exerted by water, which, infiltrated into the crevices of rocks, violently separates their fragments, on expanding during congelation.

"To these accidents of an inflammatory nature, must be added another, which is hardly ever absent, and which often exists alone during a variable period, viz., the pains that sometimes last for months or years, and depend solely upon the development of the wisdom-tooth. This persistent pain is a nearly certain sign of chronic inflammation caused by obstructed evolution; but sometimes this phlegmasia, under the influence of some slight appreciable cause, or sometimes without any appreciable cause at all, may become transformed into acute inflammation, giving rise to various serious affections of the hard or soft parts as necrosis, periostitis, abscess, etc. Abscess may form either at the exterior of the jaw, or toward the mouth, whence the pus, detaching the muscles and aponeuroses, may descend to the neck. In a case of Bérard's, the pus of an abscess which had formed in the mouth descended to the subclavicular region, constituting a true migratory abscess, from the effects of which the patient succumbed. Sometimes it is on the side of the throat that the inflammatory symptoms are manifested, and then the enlarged tonsils may have to be excised. In other cases it is toward the velum or the uvula that the inflammation is directed. Thus, an instance occurred to the author in which this was the case, and the hypertrophied uvula, hanging upon the base of the tongue, gave rise to anorexia and vomiting, and other symptoms, which during several months gave rise to the belief in an affection of the stomach. They arose, however, from the inflammation excited by evolution of a wisdom-tooth; and when analogous symptoms are present, at an age in which such evolution takes place, its possibility should always be borne in mind.

"These observations were suggested to M. Robert by the presence in his wards of three persons in whom the development of the wisdom-tooth had given rise to various accidents. One of these was a delicate youth of twenty-two, who had suffered from severe pains in the mouth during several weeks. In the furrow between the cheek and the anterior border of the ascending ramus was a vast and very painful ulcerated surface, covered with a whitish deposit; and, lower down, the gum behind the third molar was likewise painful and swollen. The ulceration had been caused and kept up by the swelling of the gum, which itself depended upon the development of the wisdom-tooth. It was proposed to modify the condition of the ulcer by means of fuming nitric acid, and to freely excise

the gum over the tooth. In the second case, a woman, aged twenty-two or twenty-three, had suffered severe pains at the angle of the jaw during two years, and had every now and then inflammation and abscess in the vicinity. The gum had been incised with temporary relief, and now, after a severe attack of inflammation had been subdued, the tooth was found to be partially through, the gum which covered the remainder being ulcerated. This was excised, and the symptoms all subsided. In the third case, a robust man, aged thirty-two, had suffered from his mouth, at the point corresponding to the last molar, during two years. Abscess, followed by an obstinate fistulous opening, occurred; but as the fistula opened near the chin, and all the teeth were sound, even an experienced dentist had not suspected the true cause. Another dentist, recognizing the nature of the case, drew the second molar, in order to give room for this new one, but without avail. The patient then came to M. Robert, who at once recognized that he had a dental fistula. These fistulæ have, in fact, their peculiarities, being slightly depressed, with the skin around them plaited or wrinkled, and when lying on the lower jaw frequently adhering to the bone. The fistula was traced back with a probe to the tooth, and the latter having been extracted, recovery soon took place."—*Gazette des Hôp.*—(*Med Times and Gazette*, Nov., 1859.)

"*The University of Brussels.*—On November twenty, the University of Brussels will celebrate the twenty-fifth year of its foundation—for it was twenty-five years since the Belgian Liberals determined upon establishing a University, which, consecrated solely to science, should afford to human reason its entire rights of free discussion and examination—morality and honesty of purpose imposing the only control; progress and truth being the only aim. Glory to those enlightened men who so well appreciated the want of their time, for to them Belgium owes an institution which, we venture to say, excites the admiration of Europe, and wherein is trained that new generation which will perpetuate the generous principles it has there imbibed. During this period the University has become the centre of Belgium Liberalism, and has been its very keystone, resisting alike the ill-will of pretended friends, and the avowed hostility of natural enemies—continuing, in spite of all obstacles, with a firm and steady step in the road of progress and prosperity. Formerly held up to parents as a bugbear, it has now acquired general sympathy, and every year the students have increased in number; coming not only from all parts of Belgium, but also from the various countries of Europe, and even from the New World."—*Presse Médicale Belge.*—(*Ibid.*)

"*Tumor of the Lower Jaw.*—DR. PARKER presented another tumor, removed from the under jaw of a man about 38 years of age, some few days ago. The patient was a farmer, of good constitution, with no hereditary tendency. When first discovered, the tumor was on the under jaw, and did not appear to have any connection with the teeth, but seemed to spring from just below the teeth. After a time the teeth became loose, and some of the cuspidati were removed. The tumor then began to press outward, and involved all the alveolar margin of the outer surface of the under jaw. The patient, however, was able to bring the molar teeth together, and masticate tolerably well. In the removal of this tumor the rule was followed which should be observed in all these cases, to remove the diseased mass entirely, but leave as much as

possible of the jaw. The tumor belongs to the epithelio-fibroid structure."

"*Phosphor-Necrosis*.—DR. MARKOE presented two specimens removed from the same patient, illustrating phosphor-necrosis of the jaw, a disease which was now attracting a great deal of attention, and the pathological anatomy of which differed in a considerable number of points from that of necrosis, occurring under ordinary circumstances. While under other circumstances necrosis produces suppuration on the outside, the separation of the dead bone and the formation of an involucrum, here a totally different circumstance occurs. Instead of the separation of a sequestrum, we find the surrounding parts secreting bone immediately around the dead portion. The dead bone becomes incrustated with a pumice-stone-like material, which adheres very firmly to the bone, so much so that it can hardly be separated from it. These two specimens illustrate very beautifully this variety of disease. They were taken from a man who labored in a match factory. He had a tooth extracted, and at that point the mischief commenced. At the end of five months he was subjected to an operation, and a portion of the jaw removed. The wound healed up, and shortly afterwards he went back to the factory. The disease then attacked the other side of the jaw, and this was removed, and also a portion of the upper jaw.

"The unfortunate feature of these cases is, that this pumice-stone exudation represents a reparative attempt, or rather it represents what would be accomplished, if the dead bone were taken away. In that case the periosteum would secrete new bone, which would replace the old bone. But when this pumice-stone exudation takes place, there is no reproduction of the bone. In this case, it is now eighteen months since the operation, and there is no formation of new bone tissue. The upper jaw appeared to be simply necrosed. There was none of this exudation, or at least so little, that it was not noticed. The patient is doing well; and, although both halves of the lower jaw and one side of the upper jaw have been removed, his face is very shapely.

"Dr. Sayer inquired whether the rule was a general one, that in these cases of removal of the jaw for phosphor-necrosis, no attempts at new bony formation took place afterwards. He thought quite the contrary was the case, and remarked that Dr. Wood, who had perhaps more experience on this subject than any other man in this country, in one case removed both upper jaws, when the bones grew in again, and the patient had placed upon them a set of artificial teeth. He would defy any one to detect that the jaws had been removed in that patient, so complete was the deception. He hoped that Dr. Wood would favor the society with some remarks on this subject.

"Dr. Wood did not desire the society to go into a discussion of this matter now. He would, however, on some future evening, bring some beautiful specimens, showing perfect reparation in cases where the bone had been destroyed by phosphorus. He would suggest that Drs. Markoe and Parker also bring their specimens, and then the society could go into a general discussion of the subject.—*Ext. from Pro. of N. Y. Path. Soc.*—(*Med. and Surg. Report.*)

"*Precipitation of one Metal by another*.—This process is largely employed on a manufacturing scale. At the mines of Freiburg, metallic silver is obtained by agitating chloride of silver with scrap iron. The

iron enters into combination with the chlorine, and turns out the silver. At the royal mint silver is obtained by immersing plates of copper in a solution of sulphate of silver. At the Cornish mines, considerable quantities of copper are annually obtained, by immersing pieces of iron in solutions of copper. These processes are performed in the wet way. As an example of the dry way, we may adduce the metal antimony, which is made commercially by fusing sulphate of antimony with scrap iron. The iron turns out the antimony and unites with the sulphur. Similarly the metals aluminum and magnesium are prepared by fusing their respective chlorides with metallic sodium; the sodium unites with the chlorine, and turns out the aluminum or magnesium. To obtain metals by this process of substitution, it is ordinarily necessary that the metal fused to expel another must be more basylous than the metal expelled; hence it is that sodium is required for the production of magnesium. With the exception of potassium, which is much more expensive, sodium is the most basylous of the metals; it even serves to displace the quasi metallic grouping of hydrogen and nitrogen, known as ammonium. Amalgam of sodium, introduced into a solution of chloride of ammonium, forms chloride of sodium and amalgam of ammonium. But those most highly basylous metals, potassium and sodium, afford remarkable exceptions to the law that basylous metals replace less basylous metals. Thus, although when sodium is heated with hydrate of iron, the sodium expels the iron, as might be anticipated, yet when hydrate of sodium and iron borings are heated together, a reverse action takes place, and the iron turns out the sodium, as in Gay-Lussac's process for obtaining that metal. This reciprocity of results is only an extreme instance of a tolerably general law. In a similar manner, though mercury displaces silver from argentic nitrate, yet silver displaces mercury from mercurious nitrate. Though copper displaces silver from argentic sulphates, yet silver displaces copper from cupric sulphate: Though cadmium displaces copper from cupric chloride, yet copper displaces cadmium from cadmic chloride, etc."—*Hunt's Mer. Mag.*—(*Practical Machinist*, Nov.)

"On the Spinal Cord.—The *Compte Rendue*, No. 24, 1859, contains an analysis by M. Flourens, of a memoir to the *Académie des Sciences*, by MM. Paolini, on this subject. The resumé of his experiments are set forth in the following:—

"1. The posterior and lateral cords of the spine are endowed with exquisite sensibility.

"2. The division of these cords impedes sensitive impressions to the encephalon.

"3. The impressions are transmitted by the posterior spinal roots, after a short passage by the side of the medullary fibres of these cords, thence pass into the gray substance of the column.

"4. The gray substance although insensible to the same, and incapable of receiving impressions excited in the sentient system, yet appears to be the channel or means indispensable for the transmission of these impressions to the sensorium commune.

"5. The posterior cords alone, being cut transversely, it is found that the sensibility of the parts of the animal below the section are temporarily augmented.

"6. The posterior cords preserve their proper sensibility well, when cut at two or three points, at certain distances from each other.

"7. The anterior cords are insensible to the immediate application of stimulus.

"8. Finally, the anterior cords are essentially motors, and strangely enough they have no semblance to the production of sensation.

"M. Flourens at the same time submitted an analysis of a paper by M. Van Kempen, of the University of Louvaine, concerning some physiological experiments on the transmission of sensibility and motion in the spinal cord. The author has repeated his experiments for several consecutive years, and those also of other physiologists, and arrives at the following conclusions;—

"1. In frogs, the transmission of *conscious sensibility*, is crossed (*croise*,) and continues the entire length of the spine; that of movement, on the contrary, is *direct* in the lumbo-dorsal portion, and crossed in the cervical portion.

"2. In pigeons the inter-crossing of the conductors of *conscious sensibility* are placed throughout the entire length of the cord. The transmission of *voluntary movement* is direct in the lumbo-dorsal region; and is, on the contrary, but *partially crossed* in the cervical region.

"3. In the mammifers, the propagation of *conscious sensibility* is crossed for the length of the column. The transmission of *voluntary movement* is *direct* only in the lumbo-dorsal region; in the cervical region it is in part crossed, and a very large part is again *direct*; in all our experiments upon the posterior side of the organ, we have found strong paralysis of the opposite side."—*Pacific Medical and Surgical Journal*.

"*A Mixed Polypus of the Nose and Antrum*.—In certain rare instances, polypi within the nose originate in the frontal sinuses, or in the antrum, and project into the nostril, although they usually grow from some part of the ethmoid and turbinated bones. A curious case, of a somewhat mixed character, was submitted to treatment on the twenty-sixth of November, by Mr. Fergusson, at King's College Hospital, in the person of an old man, who had a projecting and inflamed tumor growing to the right side of the nostril, beneath the eye, and right in front of the antrum. It was made out to be a nasal polypus, and for its removal an incision was made from the inner angle of the eye alongside the base of the nose, round the ala into this organ. The skin was then reflected back, and with the aid of the finger and the handle of the scalpel, a quantity of material was taken away from the nose and from the antrum, consisting essentially of three distinct substances: thus there were two or three true gelatinous polypi taken from the nose, while other portions of the disease consisted of fibrous material, and the remainder distinct cerebriform or medullary substance. This mixed character of disease is certainly rare and peculiar; but as one of the elements is of a decidedly malignant nature, it invests the case with some importance. When the integuments were brought together by silver sutures, the deformity was quite gone, but as that part around the site of the tumor is much inflamed and attenuated, there is a possibility of an early return of the malady. It is a fact of some significance in relation to these nasal tumors, that when they have been thoroughly extirpated, even with well-marked characters of malignancy, they have not returned, and a perfect cure has become established. Such cases we have seen on several occasions at King's College Hospital, under Mr. Fergusson's care. Every now and then, for some years past, one patient in particular has returned to show himself, in

whom the primary disease was, or seemed to be, well-marked cancer."—*London Lancet*, December 3, 1859.

Ethnology.—The *Oglethorpe Med. and Surg. Jour.* republishes from the *Ohio Med. and Surg. Jour.* an interesting article upon this subject, by J. DAWSON, M.D., from which we extract the following general observations and conclusions: "More especially on the shape of the skull, Blumenbach and Prichard have had their attention fixed. For ascertaining the breadth of the skull, and the projections of the face, the former proposed the '*norma verticales*.' Says he, 'The best way of obtaining this end, is to place a series of skulls with the cheek bones on the same horizontal line, resting on the lower jaws, and then reviewing them from behind, and fixing the eye on the vertex of each, to mark all the varieties in shape that contribute most to national character.' According to this method, all the tribes of the earth are thrown into three great classes—those having the head and face of the *oval* or *elliptical* form; those having it of the *pyramidal*; those having it of the *prognathous*.

"The *oval* form of the skull is so named because the conformation of the face and forehead is such as to give the face an oval shape. This form seems to be regarded as the most symmetrical—no undue prominence or depression. The head is round, the forehead high and expanded, the front teeth are fixed in planes parallel to each other. The head here is of the largest size, and the facial angle is the greatest. This form belongs to the Caucasian race, the most civilized of those who live by the arts of cultivated life. The *pyramidal* form of the skull is at once recognized by the great breadth of the face, large zygomatic arches, low, receding forehead, flattened occiput, flattened nose. The pyramidal form is typically exhibited by all of the yellow varieties of mankind, who in their habits are nomadic, various nations of northern and central Asia, and the Indians of America. It is seen in the greatest perfection in the Esquimaux.

"Among the rudest and most savage tribes, we have the *prognathous* form of the skull. This consists in a narrow, retreating form of the forehead, a forward projection of the jaws, so that the upper and lower incisor teeth are set at an obtuse angle to each other, and a large development of the cavities for the accommodation of the organs of special sense. The cranial cavity, as we have seen, is smallest here, and the facial angle, owing to the forward projection of the jaws, is very much less than in either of the other divisions. This form obtains and reaches its greatest degree of development in the degraded members of the African nation, and in the native Australians.

"All of these modes of investigating the most important part of osteology—the cranium—with reference to race diversities, bring us to the same conclusions: men differ from each other in the *size* and *form* of the brain, and a classification founded upon these characters may be made that is truthful for the historic period. As long as anything has been known of the Caucasian, he has had the same cranial characters; and the same may be said of the Mongolian and African.

"So far, then, as physical agents are concerned, there is no probability, from all that can be known, that they have produced the peculiarities which now distinguish the races. We must admit that the types were created as now found in the different zoological provinces, or we must seek for other causes more adequate than climate to their production.

"The following we offer as a *resumé*:—

"1. The *unity* of species question is one that cannot, by any known means, be solved. A nation, like an individual, knows nothing of either its birth or its death.

"2. Diversity of origin, which it is supposed does not imply *plurality* of *species*, seems to be indicated by geographical distribution of animals and plants.

"3. In each of the great geographical divisions of the earth, peculiar types of mankind are found which, in each instance, seem to be physiologically adapted to the locality.

"4. The inhabitants of one realm possess *specific physical* characters that differentiate them from the people of other realms.

"5. The moral or intellectual status of a race has a very intimate relation to its geographical location and physical conformation.

"6. No physical causes are known to which the race diversities which now obtain may be reasonably attributed. Climate is inoperative, except to a limited extent.

"7. Monumental history makes it probable that the types of mankind have underwent no change, from any cause, for a period of at least five thousand years."

Relative Effects of Experiments upon Different Animals.—In the course of some remarks upon this subject, in the *New York Monthly Review*, PROFESSOR DALTON observes, that "if the third branch of the fifth pair of nerves be divided on one side in the human subject, and in most animals, there is hardly any other result than a loss of sensibility in the parts about the chin and lower lip. You will remember that this nerve, beside supplying the teeth of the lower jaw and the integument about the lower part of the face, has a motor branch which supplies the muscles of mastication, or those moving the lower jaw. But after division of this nerve on one side, mastication is still performed very well by aid of the opposite muscles, and but little inconvenience results; but if the same operation be performed in the rabbit, the two gnawing teeth in front of the upper and lower jaw no longer come together in their exact position, owing to the slight lateral displacement of the lower jaw. The teeth, accordingly, which do not meet and wear each other away, as in the natural condition, grow irregularly, and produce erosions and ulcerations of the mouth; and this, together with the difficulty of using the grinding teeth in the back part of the jaw, and of properly masticating a sufficient quantity of food, produces finally, the death of the animal, in consequence of paralysis on one side of the third branch of the fifth pair."

"Solubility of Silica in Hydrochlorated Alcohol.—MR. A. WINKLER has found that, when a solution of hydrochloric gas in absolute alcohol, or even a mixture of four volumes of the alcohol and one of conc. hydrochloric acid, is shaken in a flask with as much finely powdered Portland cement as will about neutralize one-half of the acid, a perfectly clear liquid will result, which, besides the chlorides of the bases present, contains dissolved all the silicic acid, and may be kept in closed vessels for any length of time. To insure complete solution the cement must be free from carbonic acid and slags, or other impurities. On spontaneous evaporation of the liquid, the usual gelatinous mass is left, which has

then lost its solubility in alcohol. This property belongs only to anhydrous silicates, *i.e.* such which have been prepared by heat, and therefore contain no water but an oxyde in its place. Among those not comprised under this head, we may mention liquid glass, hydrated silicate of lime or of alumina, meerscham, and asbestos. The difference between the watery silicate of lime, as prepared by precipitation with liquid glass, and Portland cement digested for eight months under pure water, is a very marked one, and proves that the silicates of the latter owe their hardening quality not to their being under water, for the watery solution and the residue, evaporated together and strongly calcined, furnish a cement of the same properties as before."—*From Chemisches Centralblatt*, September 17, 1859, for the *Druggists' Circular*.

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"Alkalized India-Rubber.—Mr. Gérard, of Grenelle, France, manufactures a kind of vulcanized rubber which bears a higher temperature than the common article, since it may be heated to 320° F. without changing its qualities. It is besides tougher and harder. It is prepared by heating, during three or four hours, at 300° F., one part of caoutchouc with half its weight of sulphide of calcium obtained by calcining equal weights of plaster and charcoal in a covered crucible. For a particularly hard product an equal weight of quick-lime is added to the sulphide. The proportion of lime-salt is varied according to the degree of toughness desired, and for some by the addition of an alkaline sulphate or sulphur."—*Ibid*.

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"Porcelain Kilns.—An improvement and great saving of fuel has been made in the Gustafsberg Porcelain Manufactory in Stockholm, by the following contrivance: Instead of conducting the flame of the ovens through the floor, on which the forms rest, a chimney is erected, like a hollow shaft, in the centre of the furnace, which has openings at various elevations and sizes, through which the waste heat and gases escape, and which allow the flame to be much more evenly distributed and saved than after the usual plan. These ovens are fired both with wood and coal. The inventor is Mr. Anderson, the master-mason of the works."—*Ibid*.

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"Pocket Electro-Medical Apparatus.—M. DESPRETZ has recently submitted to the Paris Academy a new electro-medical apparatus, invented or combined by Ruhmkorff, and reduced to its simplest condition. A small box, in size about four cubic inches, contains—1. An induction coil; 2. A small Bunsen's pile of zinc and charcoal, in which nitric acid is replaced by M. Marié-Davy's sulphate of mercury; 3. Some handles, a brush, and some needles for distribution of the direct currents, or of the extra current to the surface of the patient. The manipulation of the apparatus is as simple as its construction. No vapors are disengaged. This apparatus will maintain its activity during a day. Its price is said to be moderate."—*Ibid*.

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Galvanoplasty.—"Bitumen is a strange substance. Gelatine is still more strange; and, when mixed with a solution of bichromate of potash, it certainly does work as if the magician's wand had entered into it. A thin plate of this substance, when properly prepared, will take the impression of any old picture which we choose to cut from a book or newspaper, by simply placing it upon the surface of the mixture, and exposing

it to the light; and, after drying, it is found to be hard enough and deep enough to communicate the impression to a warm sheet of gutta-percha, another curious substance capable of receiving the slightest impression. This gutta-percha impression has but to be covered with a bronze powder and placed in the voltaic circuit, when it is instantly covered with copper by the electrotype process, another wonder of wonders. The copper-plate thus produced is in relief; but by being placed in the matrix of a galvanic bath, it produces as many engraved copper-plates as the engraver may choose."—*Ext. from Opal*, Oct., 1859.

Patent Wood.—This substance, manufactured at Hale Mills, Staines, England, is sold in the shape of slabs of various sizes. It has the remarkable property of becoming softened when immersed in water for ten or twenty hours, and then after molding it into any desired shape, to retain it on drying. It is, besides, almost incombustible, the mineral ingredients amounting to over fifty per cent. It appears to be a conglomerate of various substances of vegetable, animal, and mineral origin, among which are copperas, plaster, water-glass, oystershells, red-lead, linseed-oil, cellulose, and horn, most of them refuse of some manufacturing process, and the whole united into a very useful product, and shaped into slabs by great pressure. [*Polytech. Cent. & the Druggists' Circular*.

MISCELLANY.

In the *Med. and Surg. Reporter*, (Dec. 3d.,) DR. A. G. WALTER, of Pittsburg, gives a very interesting report of a case in which he extirpated the entire lower lip and the submaxillary and sublingual glands, and also resected the horizontal rami of the inferior maxilla, for the removal of cancer. He further performed a cheiloplastic operation to restore the contour of the parts. Notwithstanding the extent and character of these operations, "the deformity of the face is trifling, and the power of deglutition and speech unimpaired, the loss of the submaxillary and sublingual glands not being felt."

In the course of an able paper upon sanguineous tumors of the pavilion of the ear in the insane, a translation of which appears in the *Am. Jour. of Insanity* for October, DR. A. FOVILLE observes that the phenomena connected with the section of the sympathetic nerve "may indicate the solution of the formation of intercranial, meningeal and other hæmorrhages; and, doubtless, a reason may be deduced from it to account for the blue swelling of the gums, with sanguineous exudation not unfrequent in general paralysis, aside from all scrofulous tendency, and it should, I think, be present to the mind in endeavoring to explain sanguineous tumors of the ears." There is very little doubt that local congestions, inflammations, effusions, and other abnormities often result from defective innervation. From his own experience, the writer is convinced that this is frequently the case. A striking illustration of the fact was afforded in one instance which came under his care, in which a gentleman had been afflicted with styes for years. The treatment was directed to restore healthy innervation, and with prompt relief, as the eruption and tendency thereto rapidly disappeared.

In the course of some remarks upon Arctic explorations, a writer in the *Lancet*, (December,) alludes to the gradual but certain enervation

incident to a prolonged exposure to the low temperature, and other depressing influences of the polar regions. Among other testimony upon the subject he refers to the following, by Surgeon McDougall. "The above facts, in my opinion, tend to prove that, even amidst comparative plenty, the approach of a third season brings with it a depression of spirits which few minds are strong enough to bear up against; more especially when scurvy, one of the most dreadful diseases peculiar to seamen, (and God knows they are subject to many!) appears among them. The blood becomes stagnant, teeth loosened, gums and palate black and sore, flesh softened; all animation ceases; and with the sun, as he sinks below the horizon, leaving the dark and gloomy night of three months' duration to usurp his throne, the last ray of hope departs."

The *Med. and Surg. Reporter* says that "an antiseptic mixture for the preservation of blood globules, nerves, ganglions, the retina, and the white tissues generally, is recommended by DR. PASSINI, to be made as follows: Protochloride of mercury, 1 part; chloride of sodium, 2; glycerin, 13; distilled water, 113 parts."

It is quite a common practice to incise the tonsils for the relief of inflammation and abscess of those glands, yet, though a simple operation, it should always be performed with care in order to avoid wounding the carotid artery, and thus giving rise to alarming hæmorrhage, to arrest which it may become necessary to ligate that vessel. Two cases of severe and dangerous hæmorrhage thus produced, are reported in the *Lancet*, (November 19th.) One was effectually controlled by the application of a ligature on the common carotid artery. The other, in which the hæmorrhage was much more extensive, was under the care of MR. HENRY THOMPSON, who determined, if possible, to avoid this extreme measure of ligation by a resort to some powerful styptic. He therefore made free and repeated applications of the solution of perchloride of iron, which speedily and permanently arrested the bleeding.

DR. E. S. COOPER reports in the *St. Louis Med. and Surg. Jour.*, (*New Orleans Med. News*), a very interesting case in which he removed seven inches of the shaft of the tibia, and in which the bone was reproduced. One of the reasons given for the particular operative procedure resorted to, is as follows: "Because complete reproduction of bone is always effected much more rapidly and with much more certainty, if two extremities of bone remain after exsection, than when there is one only,"

MR. HENRY USHER reports in the *Med. Times and Gazette* a case in which aconite applied along the course of a nerve seemed to act very efficiently in relieving an obstinate traumatic neuralgia. He also states that "in cases of facial pain it acts well, when combined with belladonna, and forms a very useful application when mixed with equal parts of chloroform and anodyne liniment."

The following is said (*Alg. Polytech. Zeit. and Druggist*), to be a very efficient method for fastening leather upon metal: "The metal is washed with a hot solution of gelatine, and the leather, previously steeped in a hot infusion of gall-nuts, pressed upon the surface and allowed to cool. It then adheres so firmly that it cannot be separated without tearing."

DR. BAUER presented to the New York Pathological Society (*N. Y. Monthly Rev.*) "four specimens of wax preparations, consisting of a cancerous liver, cancer of the lip, cancer of small intestine and mesenteric glands, (the intestine laid open,) and melanotic cancer of the cephalic vein

of the left arm, which he prepared by casts from the morbid specimen, first making one of plaster of Paris, and afterwards of wax, and giving them all the color required. By these means they were rendered true to the original, and formed an excellent substitute for the specimen in its fresh state."

In treating of new explosive compounds in the *Am. Gas-Light Jour.* (which, by the way, is a new quarto first-class monthly published in New York,) PROFESSOR TORREY relates the following singular accident: "A workman, after removing from a dwelling some gas-fixtures which had been several years in use, put one of the copper tubes to his mouth for the purpose of testing its permeability, by forcing his breath through it. Instantly a loud explosion took place, which so lacerated his mouth and fauces, that his life was destroyed in a few hours." Investigation led PROFESSOR T. and others to the conclusion that this explosive body is an unstable compound of some hydrocarbon and metallic copper.

It is stated (*Il. London News and Practical Machinist*), that "M. GERBER, a chemist of Mülhausen, has prepared for some years, under the name of argentine, metallic tin in powder, which he obtains by precipitating that metal from its chloride, by means of plates of zinc."

The latter paper says that by a process recently introduced for hardening iron, which consists in dipping articles of this metal into fused Franklinite, it becomes so hard as to withstand the action of a cold chisel, file, or drill, without yielding.

According to the *Belvidere Republican*, (*Ibid.*), MR. SOLOMON RISLEY has discovered and opened a mine of emery at Blood's Point, about five miles south of Belvidere, Illinois. The vein runs through a farm of one hundred acres. The emery has been tested, and is said to be of the best quality.

A correspondent of the *Bost. Med. and Surg. Jour.* states that, in an interview with MR. J. HUTCHINSON, of England, he had the advantage of witnessing a very marked case of that peculiar condition of teeth lately discovered by MR. H., viz: "a notched and often an inverted (sideways) state,"—and which he considers to be pathognomonic of hereditary syphilis.

DR. G. W. SPENCE recommends, in the *Lond. Lancet* for December, the following formula for a paste of chloride of zinc: "Dissolve fifty grains of prepared chalk in two drachms (by measure) of commercial muriatic acid; dissolve a hundred and fifty grains of sulphate of zinc in two fluid drachms of boiling water. When required for use, mix the two solutions, and the result will be a paste weighing nearly an ounce, and containing about one-sixth of pure chloride of zinc."

According to PROF. PARKER, (*N. Y. Med. Press*), neuromatous tumors are divided into three classes: "1st. Those which are formed upon the trunk of the nerve; 2d. Those connected more particularly with the extremities of the nerve, (painful tubercle,) as upon the fingers, toes—in fact, all situations where there are terminal branches; and, lastly, the neuromata of stumps."

DR. PAUL F. EVE reports, in the *Nashville Jour. of Med.*, the removal of a bleeding tumor, with the inferior lip, from an infant, without hæmorrhage, by the *écraseur*. The tumor was congenital, and so large as to extend down to and rest upon the chin. It measured four inches, and inter-

fered so much with nursing, that the child had to be nourished by hand. "In a few minutes after the operation, the little patient commenced sucking, has continued to do so, and the case has done finely."

The following propositions have been unanimously adopted by the *Imperial Soc. of Lyons*. That for the production of anæsthesia, ether is less dangerous than chloroform. That anæsthesia is induced constantly and as completely by ether as by chloroform. That the greater inconveniences of ether over chloroform are of slight importance compared to the greater safety of the former over the latter. That, consequently, for anæsthetic purposes, ether should be preferred to chloroform.

Mr. GEORGE BROWNING states (*Med. Times and Gazette*, Nov. 19,) that he has lately employed collodion with marked success as an application for the cure of nævus. It is most applicable to nævi situate over bone, exerting in such cases a uniform pressure much more effectual and more readily applied than that produced by means of a disk of ivory, or other mechanical appliances, with plaster and bandage. He says he has never known it to fail when he has applied it himself, which he does daily, by means of a camel's-hair pencil.

M. PASQUIER, of *Roubaix*, has exhibited (*Ibid.*) to the Academy leaves of gutta-percha mixed with peroxide of iron, which he has long employed in the dressing of fractures and complicated wounds. The leaves soften in boiling water, and may then be readily molded to the form required. Their consistence is not affected by the temperature of the body.

M. SÉDILLOT, of Strasburg, strongly recommends (*Ibid.*) the use of the actual cautery for destroying epithelial cancers; removing as early as possible (under chloroform) the healthy parts immediately surrounding the cancer.

The *United States Journal* says that "HENRY W. WIMSHURST, of Dalton, England, has invented a process of shaving *foil* of certain metals from the solid blocks, in lieu of the old method of beating out to the required thickness.

A correspondent of the *Sci. Am.* says that glass may be very readily drilled by means of a pointed file. He prefers one of Stubb's manufacture, which is to be used with water or turpentine. Another method noticed, of boring through glass, is by means of a bar of lead or iron, with emery and water.

It is stated (*Comptes Rendus, Ibid.*) that "under the influence of mercury aluminum ceases to be a precious metal, and acquires the properties of an alkaline earth. When exposed to the air the amalgam instantly loses its luster, becomes heated, oxydizes rapidly, and is converted into alumina and metallic mercury. Water decomposes it with evolution of hydrogen, formation of alumina and deposition of mercury. Nitric acid attacks it with violence."

The Philadelphia correspondent of the *Am. Druggists' Circ.* writes that among the interesting objects exhibited to the Pharmaceutical Society of that city, was Japan wax, an article recently introduced into commerce, and now for the first time offered in considerable quantities, at twenty-five cents per pound. It is a vegetable product, and its properties are intermediate between wax and tallow. It is white, firm at ordinary temperature, nearly destitute of odor and taste, and breaks with a waxy fracture.

Its fusing point is lower than that of wax, which, with other properties, will prevent it from becoming a substitute for that characteristic article in many of its most important uses. Some of its objectionable features may, however, probably be overcome by admixture with wax or other bodies.

The London correspondent of the same journal states that "the permanganate of potash and lime are now in high repute for dressing putrid sores, etc. In all cases the odor is completely destroyed, and that without pain. They are used in solution, and are produced at a very moderate price."

According to the *Cosmos* (*Franklin Inst. Jour.*) handsome cameos and other articles may be made of soapstone, or talc, by exposing them for several hours, to a nearly white heat, which is said to render the steatite so hard that it will strike fire with flint, and resist the best tempered file. The articles so made may be polished with emery, Tripoli, and jeweler's putty, and colored with mineral or organic matters; chloride of gold stains them purple; nitrate of silver, black; exposure to the reducing flame increases very much the brilliancy of the color.

MR. ROSTAING describes (*Rep. de Chimie and Am. Druggists' Circ.*) "a process for obtaining metals in fine powder by means of centrifugal action. The apparatus consists of a plate 25 centimetres in diameter, which rotates horizontally 2000 times per minute. The metal—lead, for instance—is melted and poured on the disk, from which it flies in the form of a fine dust, and is received in a vessel containing some water to prevent adhesion."

Among the rules recently recommended for adoption, before admission into the English army medical service, is one requiring an attendance upon a course of instruction in dentistry.

BIBLIOGRAPHICAL.

An Essay on Diphtheria. By D. WOOSTER, M.D., of San Francisco. This pamphlet affords a valuable resumé of the present knowledge of a somewhat peculiar and very fatal disease, which principally spends its force upon the upper part of the alimentary canal and air-passages, though, like other similar affections, it depends upon a constitutional derangement.

Ancient Marriages of Consanguinity. By ISAAC CASSELBERRY, M.D., of Evansville, Indiana. This paper merely gives an account of some of the consanguineous marriages of two ancient nations, although from its title one would be led to infer that it treats more generally of the intermarriages of past times, beginning with Adam. Its object is to present "a perspicuous arrangement of the historical marriages of Syria and Egypt," with a view to aid in the establishment of "certain fundamental principles concerning the children of marriages of consanguinity." Such efforts are worthy of all praise, as the subject is of pre-eminent importance in its relations to the healthy development and progress of the race.

The Life and Labors of Laennec. An introductory address, delivered at the New Orleans School of Medicine, by AUSTIN FLINT, M.D., Prof. of Clinical Medicine. This is an interesting biographical sketch of one of the medical benefactors of mankind.

THE
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ORIGINAL COMMUNICATIONS.

INFLAMMATION.

BY J. L. SUESSEKOTT.

(CONTINUED.)

In the last number of the DENTAL COSMOS we referred, at some length, to that pathological condition known as "Inflammation." We gave the general symptoms as indicative of its presence, and the treatment laid down was such as is usually prescribed under ordinary circumstances. There are conditions, however, met with, as frequently by the dental practitioner as by the general surgeon, which require considerable caution in the application of remedies, and frequent modifications in treatment. For the sake of illustration we will refer to the fact that, in inflammation of the subcellular tissue of the arm or leg, or any other unimportant part, as far as vital organs are concerned, we can make use of any or all the means usually recommended in such cases, regardless, in a great measure, of the possibility of our means of cure favoring the production of *pus*, or any of the other products of inflammation; but where we meet with this condition in the vicinity of vital organs or important cavities, greater caution is demanded, lest by translation the inflammation suddenly attacks these parts or organs, or some of its products are poured into, or upon them, and thus convert that which was a simple case into one of the gravest character.

Where that common product of inflammation, namely *pus*, is met with about the dental organs, or in the region of the face or neck, great caution is necessary that the orifice for its discharge is not made in such a position as to cause deformity to the patient. This fact should guide us in making use of warm fomentations to the face in cases of alveolar abscess, or in anything else, where, by so doing, we may cause it to point in such a situation as to disfigure the patient.

The popular idea that an abscess will always open at the nearest surface is not absolutely correct; this is influenced very much by the character of the surrounding tissues, and can be still more greatly influenced by our treatment. The pressure of the pus being equal on all sides, it is natural that the most yielding part would be the point of exit; but the most yielding part may be the most distant from the surface, and the walls of the abscess may be greatly expanded before a vent may be found.

It is important, in inflammation about the oral cavity, to be guarded in the use of means for the destruction of exposed nerves; for, although we are fully aware that in all cases of inflammation the power of absorption is greatly diminished, nevertheless the irritation produced by these substances might be productive of greater trouble. The application of mechanical contrivances for the separation of the teeth, or the correction of irregularities, should also be deferred as long as there is any inflammation present.

As an acquaintance with the results or products of inflammation will be of importance to all those who undertake its treatment, we will inquire into the peculiar conditions favoring their production, and into their own distinctive characteristics.

The first that we will notice is the effusion of serum. This fluid resembles the serum of the blood in a diluted form—not containing the fibrin of the blood; it is of less specific gravity than the liquor sanguinis, and is sometimes separated from the general circulation very suddenly, as in the case of sprains, but, generally, some time is required for its effusion.

The local phenomena are swelling and fluctuation, especially when it is thrown into loose cavities or textures; but it is also the cause of the œdematous swellings found in more dense parts.

The effects produced upon the parts containing it, and those in their vicinity, are frequently of a grave character; thus, for instance, important organs may be displaced, or others may be so greatly pressed upon, that their functions may be impeded. In nine out of ten cases this condition follows subacute inflammation, and the diagnosis is not very difficult. It may be confounded with dropsy arising from other causes, but the history of the case is generally sufficient to lead us to a judicious treatment.

Where the action of the absorbents has been so materially interfered with as to render them unable to remove the effused fluid, if we cannot stimulate them to renewed activity we must resort to an operation. The name Paracentesis has been given to this operation, distinguished in each individual case by the name of the locality affected; thus, we have Paracentesis colli, in hydrocele of the neck, etc. In simple œdema and anasarca, puncture of the skin is all the operation that is required.

The next product of inflammation to which we will refer is that of the effusion of coagulable lymph or plasma.

The lymph is the fibrin of the blood. The liquor sanguinis is first

poured out, we then have a separation of the serum and fibrin—the serum being absorbed, the fibrin remains. This phenomena is sometimes produced by nature, in her efforts to protect important parts, by preventing the ingress of deleterious substances, as vitiated pus from an ulcer or an abscess, or vitiated secretions from a diseased organ. In the formation of abscesses we have their walls thickened by this kind of effusion. The inflammation favoring it must be of a certain grade: if too low, plasma is not poured out, and if too high, we have pus formed. There seems to be a point similar to a secreting point.

Notwithstanding this product of inflammation is frequently useful in assisting nature, it is no less frequently productive of disease. It is present in the production of hepatization of the lungs; various tumors; closure of the trachea in croup; strictures; adhesions, and strangulations. If not removed by absorption, and in some cases time cannot be afforded to permit of this result, resort must be had to the knife, as in tracheotomy or bronchotomy in croup, and in the different operations for stricture, etc.

The next product of inflammation to which we will briefly refer, is that denominated adhesion; by this we understand the accidental or abnormal union of parts, either separated naturally or by some chance from each other. This product of inflammation, or, according to some, of *irritation*, is nothing more than the effusion of coagulable lymph or plasma, under peculiar circumstances. When, for instance, a simple cut or wound unites without suppuration, the bond of union is either pure coagulable lymph or the fibrin of the blood; and it is said to heal by *adhesion*, or by “*adhesive inflammation*,” or the “*first intention of Hunter*.” Professor McCartney calls this process “mediate union by lymph,” and denies the existence of inflammation in its accomplishment.

The changes which take place during the organization of the bond of union are very interesting: first, the lymph coagulates by the serum being removed, leaving it very much of the consistence of albumen; vessels soon begin to form, either through the inherent vitalizing power in the lymph itself, or by a continuation of the vessels of the surrounding parts; after that, there is a marked increase in the firmness of the effused substance, and it is soon converted into fibrous or cellular tissue. The utility of this process will be apparent to the most casual observer; wounds are not only closed, but important cavities are protected by the adhesion of diseased viscera to their walls, thus permitting a discharge of the debris of these viscera to occur externally. Also, in wounds of the abdomen, where the intestines, urinary, or gall bladder is wounded, by causing the injured part to unite to the external wound, and thus discharge their contents, fatal peritonitis is prevented. In the restoration of parts entirely separated from the body it plays an important part, and upon it the success of *plastic surgery* depends.

The most frequent result of inflammation with which we meet, and a result which is *always* preceded by that peculiar condition, is that denominated *Suppuration*. As the study of it is of great interest, because of the variety of forms in which it appears, we will reserve the consideration of it for a future article.

(To be continued.)

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[Translated from the French, for the DENTAL COSMOS.]

DENTAL ANOMALIES AND THEIR INFLUENCE UPON THE PRODUCTION OF DISEASES OF THE MAXILLARY BONES.

BY AM. FORGET, M.D., C.L.D., ETC.

Memoir crowned by the Academy of Sciences at its meeting of 14th March, 1859.

(CONTINUED.)

OBSERVATION 2.—Dental tumor occupying the alveoli of the two first molars.

The subject of this observation—communicated in 1809 to the Faculty of Medicine by M. Oudet, then house-surgeon at the Hôtel-Dieu—complained of the great inconvenience caused by a tumor in the inside of his mouth. The tumor was formed of a large mass which had at first been supposed to be tartar. It protruded perceptibly above the level of the dental arch, and caused a large swelling on the side of the cheek. The extraction was easily made, and its form and nature could then be decided upon. According to the description given by M. Oudet, the tumor resembled a cone planted upon its summit in the alveolar cavity, and connected by its base with the crown of the contiguous teeth. It consisted of an aggregation of the dental elements belonging to the small molars, some of which, by their disposition and their reciprocal arrangement, reproduced, in small, the form of the incisors and of the milk canines.

In this case, the pathological influence had the effect of exaggerating the elementary parts of the small molars, and, by associating them irregularly among themselves, had restored them to the condition of a solitary tooth.

There are other intramaxillary tumors which are not, like those that have been occupying our attention, due to a morbid and original aggregation of the various dental elements, but to the secondary hypertrophy of one or more of the same elements.

The tooth which presents this anomaly of nutrition generally preserves its principal physiological characteristics, and the alveolus that is its

receptacle is not sensibly modified in form, while the tumors, almost always confined to the dental roots, are not much developed—thus they are, for the most part, inoffensive, and are not perceived even by the individuals who are affected by them.

It is only when they increase and reach a dimension large enough to change the vital conditions and the appearance of the jaws that these tumors end by constituting a morbid case necessitating a resort to surgery.

Figures 1 and 2 of plate II., exhibit an anatomic section belonging to a similar fact. It was observed by my colleague, M. Maisonneuve, under the following circumstances, which he has had the kindness to communicate to me :—

OBSERVATION 3.—Intramaxillary osseous tumor united to a neighboring molar tooth. Simultaneous extraction of the tooth and tumor.

A man, aged forty-five years, came from a province to Paris, to be relieved of a tumor in the inside of his mouth, which caused him inconvenience and severe pain. This tumor occupied the left side of the lower jaw and formed a large swelling on both sides of it, especially on the external face, where it resulted in an unsightly alteration in the features. At the small extremity of the ovoid represented by the tumor, was a carious tooth, the crown of which was completely destroyed, and a large portion of the tooth hidden by the projection of the gum that supported the morbid product was inclosed in the alveolus. Before commencing to operate upon the tumor, M. Maisonneuve directed his patient to have the tooth extracted, hoping that its removal would open a way for a better exploration and easier approach to the encysted product. This preliminary operation had an unexpected and definitive result, for the same stroke brought away the tooth and the tumor that was annexed to it.

The size of the latter exceeded that of a large pigeon-egg, and it was connected with the tooth by a very narrow pedicle. The cut which was made in it along its axis allowed the operator to ascertain the line of intersection between the tumor and the dental root. A microscopic examination of the piece demonstrated that the tumor did not contain any ivory, and that it was formed of osseous tissue exclusively.

The patient was not long in recovering. In consequence of this double extraction, the walls of the alveolus, which had been turned aside and raised by the tumor, subsided; a slight inflammation attacked the internal surface of the cyst, which, shrinking insensibly, gradually contracted, and was at length completely closed up.

Comparative anatomy has proved that morbid productions, analogous to the preceding, occur in animals, especially in the large ruminating animals. M. Goubaux, professor of the veterinary school at Alfort, has published some examples, and I annex a drawing of an anatomic section now in my possession, for which I am indebted to the kindness of the Honorable M. Leblanc, member of the *Académie de Médecine*. This

anatomic section has the double interest of exhibiting conspicuously both the anomaly of nutrition which constitutes it, and the alteration of the maxillary bone that has been the consequence of it.

OBSERVATION 4.—Osseous tumor encysted in the upper jaw of a horse.

The tumor was found in the interior of the alveolus of the superior canine tooth, having no adherence to the tooth, which exhibited its natural development, and was driven back sensibly toward the median line, to make room for the morbid aggregation. (Plate II. fig. 5.)

The tumor was of an irregular form, and about the size of an egg, (plate II. fig. 6,) and it was encysted in a cavity formed at the expense of the maxillary bone, (plate II. fig. 5.) The progressive alteration of the osseous tissue, the formation of a purulent collection in the interior of the cyst, and the spontaneous opening of the latter, by means of ulceration, were the accidents to which the tumor gave rise.

As to the nature of the production, microscopic examination proved that it, like the preceding, was formed entirely of osseous substance, or dental cement.

I must not omit to say, that the surfaces of all these morbid productions are covered by an enveloping membrane, which is none other than the alveolo-dental periosteum. This membrane secretes the osseous elements whose aggregation constitutes the intra-alveolar tumors, which are, in our opinion, incorrectly considered to be dental exostoses. To regard them from this point of view, is to refer to them all the physiological explanations that are suited only to the dependencies of the osseous system. It is to admit that they draw their origin from the tooth itself, whereas it is in reality a question of a substance entirely distinct from it—a substance that is in formation and growth completely foreign to the organic operations to which this owes its development.

The absence of all original community between the tooth and these osseous products of accidental formation, is clearly shown by the preceding observation, which exhibits the production isolated, and without any relations by continuity of tissue with the canine of the horse, with which it was in simple juxtaposition.

There is another fact which I also derive from comparative pathology, and which is of a nature to exhibit the really considerable degree to which simultaneous hypertrophy of the dental substances can rise, and the gravity of the disorders which it creates in the thick part of the bones where it occurs. I have reproduced, in its natural dimensions, the anatomic section relative to this fact, which has been communicated to me by M. Boulay, professor of the school at Alfort. (Plate V. fig. 1.)

OBSERVATION 5.—Rare case of dental hypertrophy in a horse.

The figure represents the second grinding tooth of a horse affected with glanders—a disease which killed him.

This animal showed a considerable development on the right side of

the upper jaw, at the centre of which a very unusual increase of the second grinder had produced a very extensive inflammation, characterized by the rarefaction of the osseous tissue and the enlargement of its spongioles.

The tumor was quite irregular in form, and weighed more than a kilogramme, (2·2055 pounds avoirdupois.) It was formed by the simultaneous hypertrophy of the ivory substance and of the cement, but in the largest part, by the hypersecretion of the latter. Deposited in successive beds, and of unequal thickness at the surface of the tooth, this substance there formed bumps or swellings superposed and separated from each other by a sort of circular groove—an arrangement that explains how such teeth are inclosed in the interior of the jaws, and shows the reason of the impossibility of extracting them without breaking the dental arch, which includes exactly that depression or species of strangulation intermediate to these anomalous swellings.

This pathological section has one very interesting particularity, viz., that in the interior of these bumps or swellings there are cavities containing movable fragments of osseous tissue, and which, broken close to the two openings (plate V. fig. 1, *b* and *c*,) in the walls of these cavities, manifestly extend with the spongy tissue of the jaw. Add to this, that microscopic examination leaves no doubt upon the osteo-ivory structure of this dental block, and also exhibits the parallel arrangement of both substances. (Plate V. fig. 2.)

It is unnecessary to dwell longer on this point to make it understood that, among men as well as among animals, it rarely occurs that a tooth is thus altered or deformed without the maxillary bone on which it is planted becoming the seat of a pathological state varying in gravity and extent according to the intensity and duration of the action of the cause which produced it. This fact has been correctly noticed by M. Boulay, in his remarkable treatise upon the diseases of the dental apparatus of the herbivora.

(To be continued.)

NODULAR CALCIFICATION OF THE DENTINAL PULP.

BY J. FOSTER FLAGG, D.D.S.

My attention having been, during the past few years, frequently directed toward the consideration of that peculiar form of diseased action resulting in nodular calcification, I was induced to make some investigations as to its nature, the pathological condition of the surrounding structure and membranes, and its semeiological and therapeutical indications. The result has been of sufficient interest and *practical utility* to induce me to submit a few remarks upon this subject.

Besides that healthy and self-protecting action which is, strangely enough, generally treated upon as a "disease" of the pulp, and designated "ossification" of that organ,—a condition of secondary dentinal deposition invariably consequent upon the progress of slow decay or gradual loss of external tooth substance from attrition, and which, so far from giving rise to trouble, is the only guaranty for exemption from pain; I say, besides this, we occasionally meet with another form of deposition which must be regarded as a diseased condition, and which is the presence, in greater or less number, of small nodules *within the substance* of the pulp, forming, as the suffering of patients proves to us, local excitants to inflammatory action capable of producing the most excruciating agony. I can speak from my own knowledge upon this point, for I have lost three molars within four years from this painful affection, and it may be presumed that I have endured and experimented in no ordinary degree toward its treatment, from a *somewhat personal* interest which I feel in the salvation of my own teeth.

Patients occasionally present themselves desiring the extraction of teeth with no apparent existing cause for trouble sufficient to warrant the performance of that operation; in one of my own, which was extracted, and from which three nodules were taken, *not the slightest external sign* of disease existed,—*symptoms* there were in abundance. Comparatively often teeth present, in which caries, although commenced, has not sufficiently developed itself to excite suspicion of danger to the pulp, or even to render it difficult to arrest entirely the progress of apparent disease by a well-performed plugging operation; and yet, this having been done, the inefficacy of that treatment is proven by the continuance, and even augmentation of suffering, and finally, after a supposed diagnosis of sympathetic odontalgia, and treatment accordingly, without obtaining the desired relief, the tooth is extracted almost invariably with actual if not expressed doubts on the part of the operator as to the beneficial results to be obtained from even that "*dernier ressort*." The tooth being out, however, to the operator's surprise and the patient's gratification, the only pain remaining is that incident to the mechanical injury done the parts.

An examination of the pulps of such teeth will, I am convinced from actual experience, show, much more frequently than is generally supposed, hardened substances of greater or less extent within the true pulp tissue, sometimes quite palpable to the sense of sight, but at others only distinguishable by pressing the pulp between the finger and thumb, thus giving rise to a sensation as of grains of sand.

As extreme opposite cases to this latter condition, I would state that I have frequently seen the entire pulp indurated, and, more than this, deposition of calcified material continued until absorption of dentine had taken place and irregular enlargement of the pulp cavity produced.

That this disease is the result of irritation, would be, doubtless, ad-

mitted by every one at all conversant with that condition; but I shall not occupy space, at this time, for remarks in a theorizing direction, in regard to its mode of action. I would say, however, that I have examined, microscopically, many specimens of dental pulp exhibiting partial or entire nodular calcification, both with direct and transmitted light, without being able to discover any traces of those cavities or "lacunæ" which are considered by Carpenter to be peculiarly characteristic of osseous formation, and I have, therefore, thought proper to place this substance as a connecting link between pulp and dentine: pulp, inasmuch as its structure is gelatinous; dentine, only in the solidity of its consistency.

The symptoms of the existence of this condition are: continued pain, increasing in violence with the progress of the disease until it becomes unendurable; *sometimes* slight external inflammation, indicated by pain upon striking the affected tooth, but, frequently, none whatever; a *peculiar sensitiveness* of enamel, even from the mere touch of the finger; exquisite sensibility of dentine *increasing upon cutting or drilling*; exquisite pain from pressure upon the pulp *after it is exposed by drilling*, so much *more* than ordinarily occurs as to agonize upon the slightest touch, thus precluding any *direct* application, even for obtunding the sensibility or destroying the vitality of the pulp; forming, altogether, what I may safely state to be by far the most painful condition, incident exclusively to a tooth, that the dentist is ever called upon to treat, and that one which requires the most patience, the most delicate manipulation, and, at the same time, the most energetic and thorough treatment for the attainment of a satisfactory result.

Treatment. When the existence of nodular calcification has been diagnosed, the treatment which I have adopted, as the result of experiment, and which has been entirely successful in all the cases (five) which I have treated during the past six months, is, to commence drilling as usual in extirpation cases, and work until it becomes too painful for continuance; then, either etherize and drill at once into the pulp cavity, (my usual method,) or apply the Ars. Acid, Sulph. Morph., and Creosote for one hour, and drill again to sensibility; alternate the application and drilling until the pulp is exposed. As I have stated, it is unendurable to make direct application to the pulp in its highly irritated condition, I therefore apply strong Iod. Tinct. (a suggestion of Dr. James E. Garretson,) which obtunds sensation by its constringent effect, and then follow immediately with the arsenic, etc.

This arsenical application is to be made with *accuracy* and *care* and in *minute quantity*, as the *least time* absolutely required for the establishment of a condition of pulp which will tolerate even the commencement of extirpation is forty-eight hours, and I have had one case in which it was only after *ninety-six hours* application that I was enabled to extract the *first* nodule. It will readily be understood, *why* this long duration of

application is required, when the peculiar pathological condition of the organ to be treated is considered, and *how* this continuation of contact between the arsenic and the pulp is not productive of unpleasant consequences, when we know that under ordinary circumstances, in simple exposure, such a course of treatment would inevitably result in the entire destruction of the vitality of the tooth, and its exfoliation. Having, at length, so far obtunded sensibility as to permit operating a straight bar-shaped instrument is used, and the nodules loosened and taken out precisely as the paving stones of a street are removed for the purpose of repairs. This may be regarded as a somewhat singular simile, but that work has been so instantly brought to my mind, every time that I have extirpated one of these nodulated pulps, that I am forced to use it as peculiarly appropriate. After having thoroughly prepared the pulp cavity and fang canals, drilling out the contiguous dentine rather more freely than usual, for the purpose of removing more perfectly that which must have been somewhat affected by the arsenic, I treat freely with Ferrum Oxydatum Hydratum as an antidote to the poison, thus rendering the liability to after trouble nugatory. After a week of perfect exemption from the least unpleasant sensation, I place a small piece of cotton, saturated with Creosote or dilute Pyroligneous Acid, in each fang, and plug as usual.

MALPRACTICE MET WITH AND TREATED

BY HERMAN ROTTENSTEIN, D.D.S.

REPORTED BY DR. J. L. SUESSEROTT.

ON the 26th of July, 1859, in an interior town in Pennsylvania, Dr. Rottenstein was called to see John M., a boy aged about six years. His face was greatly swollen, and the odor of the pus that was being discharged from the oral cavity was so offensive that not only the doctor, but the mother of the child, who was his constant attendant, could scarcely endure it long enough to be enabled to perform the requisite offices for his comfort and relief.

On examination the doctor found a large ulcer on each side of the superior maxilla, and the parts so greatly contracted and united as to connect the cheeks with the gums. The temporary molars on both sides were greatly discolored, and, upon making inquiry into the history of the case, he was informed that the child had been under the care of a physician for five months, for the cure of what, originally, were small ulcers of the mouth, and that he had visited him daily, and cauterized the parts with nitrate of silver.

A closer examination demonstrated to the doctor that the temporary molars, above mentioned, were acting as foreign bodies; that their vitality

had been entirely destroyed; and that necrosis of the alveolar borders had been the result of the continued inflammation.

Desiring to act upon true scientific principles, and to adopt such means as would alone lead to beneficial results, he suggested the propriety of removing these organs, as they were no longer of any use, but, on the other hand, the cause of much trouble. His proposition was at first strenuously opposed by the mother, who urged that "*if a physician could not perfect a cure, certainly a dentist could not.*" The sequel has, however, fully proven the fallacy of her argument. After some delay, she was induced, by the logical reasoning of Dr. R., to yield to his course of treatment.

Upon attempting to remove the teeth, he found the operation attended with very little difficulty, for they, together with a considerable portion of exfoliated bone, came away quite readily; he then treated the ulcerated surfaces with a strong solution of tincture of myrrhæ and creosote until they presented a healthy appearance. Being compelled to be absent from the place for some time, he requested the mother to continue to wash the parts with a solution of the tincture of myrrhæ, to notice if the partially developed *permanent* teeth should be thrown off, and to preserve until his return whatever might come away.

Unfortunately for the patient, the doctor was not mistaken in his prognosis, for during his absence the crowns of the first bicuspid teeth were exfoliated, but were accidentally lost. Upon again examining the mouth he found two black spots where the ulcers were not disposed to heal, and when touching these with an instrument, he found the crowns of the two second bicuspids entirely loose, and ready to come away; he effected their removal without any difficulty, and I now have them in my possession; almost the entire half of each giving indubitable evidence of the action of the nitrate of silver upon their delicate structures, being quite black and slightly corroded on the sides that were exposed to the chemical agent.

After the lapse of a fortnight the doctor dismissed his little patient, entirely relieved of the former trouble, but doomed to pass through life with a deformed and imperfect dental arch; for no human skill can restore that which the culpable carelessness and want of information, on the part of one who should have been better informed, has destroyed forever.

The respect and thanks of the dental profession are due to Dr. R. because he, a young member, has ably employed the resources of the science, and fully demonstrated that those who have regularly entered the ranks, and acquainted themselves with everything pertaining to the profession, are prepared for any emergency.

OSTEOPLASTIC FILLING.

BY L. P. CRANE, M.D.

IN the last number of the DENTAL COSMOS there appeared an article from the pen of J. Ward Ellis, of Chicago, in relation to Dr. Pearson's osteoplastic filling, to which, in accordance with your suggestion, I wish to make a short reply. I have used the above filling in my practice constantly, for more than six months, with the most happy results; and I will here say, that I have never yet had a patient whose teeth I have treated with this material, return with the old stereotyped complaint, "Doctor, the teeth you filled for me are troubling me very much;" or, "Doctor, I'm afraid the filling you put in my tooth has come out;" in fact the result has been so far ahead of my expectations when I first procured a sample of the osteoplastic, that I have become quite an enthusiast on the subject. I had then several patients with teeth in the worst stages of decay: one instance was that of a young lady whose teeth were in a very good condition, with the exception of the two lateral incisors, which were so far gone as to make it an impossibility to fill them with gold; seeing Dr. Pearson's advertisement in the papers at that time, I procured some of his osteoplastic with a view of testing it in these particular cases. I filled the cavities and built up the parts which were entirely gone, not really expecting it would remain; but the result is that those very teeth are apparently as sound to-day (six months after being filled) as any teeth in her head. Since that time I have had a great number of similar cases, and have invariably treated them with this material, and always with perfect success; in fact my experience with the osteoplastic has been so perfectly satisfactory, that I have about abandoned gold and tin as a filling and confine myself almost exclusively to the use of this material. In my own practice I have not met with any case similar to that mentioned by Mr. Ellis, to wit, after-pain from the use of hot or cold drinks; but I suppose that may be accounted for in the same way as hundreds of cases met with by all dentists, where there is some latent disease of the pulp, which generally disappears after a reasonable time; though, from the fact of not having met with any trouble of that kind in my own practice, I was led to believe that difficulties of that nature were entirely obviated by the osteoplastic filling.

In regard to the effect of the liquid with which the powder is mixed, upon the bone of the tooth, I can only say that I conclude that is a matter which time only can solve. I always supposed, however, that in mixing the two ingredients, the acidulated liquor was in a measure neutralized by the carbonates contained in the powder; but I *can say* that I have had this material in my own teeth for about six months, and that I have experienced the greatest comfort from them; there is no apparent sign or feel-

ing of injury to the bone whatever ; and this corresponds with the experience of very many of my patients whom I have questioned on the subject, and whose teeth I have examined, with especial reference to this result, since the 'appearance of Mr. Ellis's article in your journal ; and being myself interested in getting all the information I could on the subject, I have taken particular pains to see those whose teeth, when I filled them, exhibited almost every stage of decay, and which had been filled different lengths of time, from one to six months. And here let me add, when I first commenced using this filling I adopted the course of keeping a record of every patient for whom I operated, and the condition of the teeth at the time, that I might the better watch the results of my experiments with it, and I have continued this course ever since, as a matter of reference. In conclusion, I can but repeat that my operations with Dr. Pearson's osteoplastic have been a series of perfect successes.

NEW YORK, *January 18th, 1860.*

ON FILLING TEETH OVER EXPOSED NERVES.

BY T. M. BENTLEY.

I HAVE been highly pleased with the discussion on the subject of treating diseases of the teeth, filling teeth, etc., from time to time, in your valuable and highly useful journal, the DENTAL COSMOS, and allow me to add that I have found excellent results from the following practice : If a patient applies to me to get a tooth extracted which has been aching violently, and, perhaps, for days, I examine the case with the utmost care, and if there be a cavity or a decayed portion, so as to admit of a suitable cavity being formed, or, in other words, if I find that the toothache proceeds from an exposed nerve, and that the tooth is worth saving, I advise immediate filling—first, with gold; *of course*, but if that cannot be afforded, I advise tin foil. I proceed then to form a suitable cavity, as carefully as possible, occasionally applying creosote if the pain is great, but rely mainly on sharp instruments quickly used. When the cavity is formed, I saturate a very small pledget of cotton with creosote, introduce it into the bottom of the cavity when it is perfectly dry and clean ; I then prepare my gold or tin, as the case may be, by loosely rolling and folding a leaf, or portion of a leaf, torn off at the time with my fingers, (as foil shears are useless;) a pellet is formed either round or oval, to suit the cavity for which it is designed, (the patient, during this time, is not suffered to close the mouth;) the cotton is then removed and the filling carefully introduced into the dry cavity, and if the packing is well done, and the surface sound, and full, and well polished, my experience is that *seven* out of *ten* cases will be successful. I sometimes add to the creosote an equal quantity of alcohol, and find the result equally good ; and this, for

the majority of cases, is the best practice, and gives the most universal satisfaction of any that I have tried, and to my mind it is superior to any of the plans that presuppose treatment and cure of toothache prior to filling. I can produce a great many witnesses to prove that the above treatment has cured toothache, and saved their teeth. I have filled eight at one sitting, all of which were described as aching and very sensitive, and all except one gave entire satisfaction, and that, on refilling, was made entirely satisfactory; the difficulty being an imperfection in my work, the air having found access to the nerve or pulp.

JEFFERSON, *December 12th, 1859.*

ELECTRICAL ANAESTHESIA IN SURGICAL OPERATIONS.

BY W. G. OLIVER.

(CONTINUED.)

EXPERIMENT 4. *Buffalo Hospital, February 27, 1858.*—Prof. Frank Hamilton, surgeon; subject, a German youth, about nineteen years old; index finger of left hand shattered by bursting of a gun; case of long standing; very much swollen and inflamed. Three electrical bandages were placed on the arm and hand; one above the elbow, to which the positive pole was attached; one at the wrist, and one around the third and fourth finger, to which the negative was fastened. After charging the limb five minutes the balance of the finger was amputated, after which a considerable quantity of carious bone was removed. Operation lasted about twelve minutes. The patient witnessed the operation, and gave utterance to a low guttural sound, which was interpreted by those present as the language of fear. He was questioned as to whether he felt pain during the operation. He said, "*Only very little*;" he had complained that his hand had been painful at nights, and was asked if the operation was like that. He quickly said, "Oh, no!" The three medical gentlemen who witnessed the operation agreed that under ordinary circumstances it would have proven a very painful one, and gave as their opinion that but little pain was felt.

EXPERIMENT 5. *Medical College, Fourteenth Street. New York, November 9, 1858.*—Professor Valentine Mott, and son, Dr. Mott, surgeons. American female; three tumors on the crown of the head, two or three inches apart. A narrow wet bandage was wound around the head close to the hair, but free from it; a fine copper wire was then wound around about ten times on top of the bandage, to which the positive pole was attached; a metallic rod, connected with the negative, was grasped in both hands. After charging the patient for about five minutes, the operation proceeded, and the tumors were taken away in twelve minutes. The patient was closely questioned as to her sensations during the operation, and *she declared that she felt no pain*—only pressure at the bandage

and on the top of the head. Prof. Mott then asserted that the anæsthesia had been complete, and expressed himself highly gratified at the result; and the class, of about 400, appeared, by their approval, to coincide. The professor expressed his desire to try other experiments, and invited me on the following Thursday; was called home by sudden illness of wife, so I could not attend.

EXPERIMENT 6. *Bellevue Hospital, New York, in presence of class—about 200—November 11, 1858.*—Dr. Stephen Smith, surgeon; subject, a laboring man, (Irish.) I inquired the nature of the operation, and was shown a diseased spot on the leg, which was to be laid open, to *examine* the bone. An electrical bandage, such as before described, was placed above and below the part to be operated on—positive pole to the upper, negative to the lower. The current was passed through the limb, which alarmed the man, who said it hurt him; after a few minutes the incisions were made and the bone laid bare, and found to be diseased. By means of holes bored with a trephine, a chisel and mallet, considerable bone was taken away. Operation lasted forty-five minutes, during which the patient occasionally complained of severe pain. It was the opinion of several who saw the operation that great benefit was derived from the battery; had I *been aware* of the extent of the operation, at least two more bandages would have been applied.

EXPERIMENT 7. *New York Hospital, November 13, 1858.*—Prof. Van Buren, surgeon; subject, a laboring man, (Irish;) a piece of glass deep seated in the fleshy part of palm of the hand. Electrical bandages were placed, one on the arm, another embracing the four fingers—the positive pole to the bandage on the arm, negative to the other. The current was generated, and patient complained very much, saying it burnt him. After charging the limb for ten minutes, an incision was made and the piece of glass extricated. Prof. Van Buren expressed his regret that the patient was not an intelligent person, and encouraged me to persevere, for he said the effort was a noble one. As to the theory of operation by which the anæsthesia is produced, should like to give my views, but space will not permit on this occasion. I have something to offer as to the application of electricity in obstetrical cases also, and will embrace the first opportunity to do so.

BUFFALO, N. Y.

ANOTHER AMALGAM.

BY P. H. CARDWELL.

By combining or mixing Jones and White's gold foil with mercury, adding a few drops of sulphuric acid, and working it with the point of a knife upon the kind of paper used for gold-foil books, so that the paper absorbs all the acid except just what seems to be necessary for the perfect

union of the metals, and then removing as much as possible of the mercury, by pressing through buckskin, I have an amalgam that makes a very fine rim round the gum of jobs of plate work, and have been getting up several jobs in this way. Now, the above I claim to be my own discovery; and I know that after being properly condensed and burnished, the work looks far better than some specimens of work gotten up on Slayton's plan, which were shown by his agent; and I have written the above for two purposes, first, that you may make it known to the profession, and, secondly, to ask your opinion as to whether it can be considered an infringement upon Slayton's right to use the above method in forming bands around the gum and filling up all the little vacancies between the teeth.

I should have said that I envelop the teeth in plaster and sand, after having first deposited the amalgam just where I want it, making it quite full, so as to allow for condensing, after the mercury is evaporated, which can be done by gentle heat in any way. The first job I got up in this way was a full upper set, and evaporated with a blow-pipe. The plaster and sand are placed so as just to expose the amalgam, and the evaporation may be commenced with all the moisture in the plaster and sand, and kept up for about one hour, with great care not to raise the heat too high at any time, which can be discovered by watching the appearance of the amalgam; for if, while the blaze is being applied with the blow-pipe, the amalgam should present a brighter appearance than usual, then the heat should be withheld a moment or so; and thus continue to apply the heat gently until the mercury is all exhausted. Then, after the work has cooled down, remove the plaster and sand, and dust off the work with a soft brush until it is clean; then commence and condense all over with gentle pressure.

But I have a better plan now for evaporating the mercury than with the blow-pipe.

Now, if it is no infringement upon Slayton's right to use the above—and I am sure I got none of the above from his new method; in fact, I know nothing about how his work is gotten up—then I am willing for the profession to have all of it; and I will, in future, give my method in full.

KNOXVILLE, Oct. 19, 1850.

THE ALLOY OF PLATINUM WITH IRIDIUM.

BY C. BREWSTER.

THIS subject, the merits of which I have for a long time had in consideration, and one that I think is high time that it should be brought before the dental profession, all of whom (or mostly all) are aware of the great defect that exists with regard to the present mode of inserting sets of continuous gum-work.

The defect that I allude to,—I say *the* defect, for so far, I must say, I know of no other worth mentioning that exists in that work, but look

upon it as the nearest approach to perfection that has ever yet been attained; one that blasts the whole affair, and that will always keep it in ill repute with some, or, most likely, with *most* of the profession,—is its want of strength. As far as beauty and general adaptability to every form of mouth is concerned, it has no equal; and again, for purity and cleanliness, I firmly believe that nothing has been or ever will be made that can excel it on those points.

Some object to this work on account of its weight, and, perhaps, with some little show of reason, too, though I think myself that fault is magnified to a much greater degree than there is any call for. I suppose it is a fault, though barely sufficient to give it a claim to that title; still we can trace it, small as it is, to that “original sin,” *want of strength*, which has so much afflicted the faithful.

And it is with the object of remedying this evil in a great measure that I would propose the introduction into the platina of that metal called *iridium*, at present but little known in commerce, and very little, if at all, in the arts. But I am assured on the best of authority (JONES & WHITE) that plenty of it exists, and can be obtained without trouble, though the price is rather high—a fact that I am rather at a loss to account for, as it is generally an established rule where a large amount of anything exists, with little demand for the same, the commercial value is proportionately low. Now the only thing that iridium is used for to any extent, that I am aware of, is to point gold pens with, which immediately receive the dignified title of *diamond pointed*. The only conclusion that I can therefore come to is, that the manufacturing of the metal from the ore must be a very expensive process. But I feel certain that in an age of improvement like the present, if there was only sufficient demand for the article to make it worth while to improve the process of manufacture, we should soon have it at a reasonable price.

Iridium, discovered in platinum ore, resembles the latter in many respects, being of the same color. It is, however, less fusible than platina, and not quite so heavy, its specific gravity being 18.68, while that of platina is 21.5. It has been alloyed with most of the metals, and in all cases they are considerably hardened by its presence; and this is what is so much wanted in platina to make it equal in strength with ordinary gold plate, so that it may contribute its proper share of strength to the completed set of teeth, and not have us depend solely on the body for the strength and durability of the whole structure, which at present is the case. For the platina plate, even when made very thick, offers but little resistance to any force that is applied to it. But united with a proper proportion of iridium, a plate could be produced as strong as any gold one, and at the same time preserve all the attributes of platina; and it is not in full sets only that this iridinized platina would excel the simple metal, for in partial sets of one, two, or three teeth on a plate its advantages would

be pre-eminent, not only over the present method of inserting partial sets on platina, but even (where gums are required) over gold itself.

When we come to consider the clumsy attempts that are frequently made to insert partial continuous gum sets by attaching them to gold plates, either with rivets or else, much worse, by soft-soldering them to the gold plates, we cannot but appreciate the value of some improvement in this direction. And again, some, disgusted with the bulky affair, have vainly attempted to insert the platina plate alone, by soldering platina tubes to it, through which to pass gold clasps, that could be removed in case of the piece having to go through the fire again. How many other such contrivances have been invented, I cannot say; but we need not have any more such, if we had our platina sufficiently stiff so as to make *its own clasps*.

In conclusion, I would express the hope that this subject will be thoroughly investigated by all concerned, as I feel confident that such an improvement would be of great benefit to the artificial department of the profession.

MONTREAL, C. E.

PROCEEDINGS OF DENTAL SOCIETIES.

PENNSYLVANIA ASSOCIATION OF DENTAL SURGEONS.

REPORTED BY GEO. T. BARKER, D.D.S.

A STATED meeting of the Association was held on the evening of December 6th, 1859, at eight o'clock.

The Vice-President, Dr. T. L. Buckingham, in the Chair. The minutes of previous meetings were read and adopted.

Dr. Barker, of the committee on printing the constitution, reported that it was ready to be placed in the hands of the printer.

The proposed amendment to the constitution was then taken up and adopted: "That any member who shall neglect to pay his annual dues two successive years shall cease to be a member of this Association, the secretary having first addressed him upon the subject."

The resignation of Edward Townsend was received and accepted.

Dr. Barker gave notice that he would present, at the next stated meeting, a proposed amendment to the constitution relative to the holding of special meetings: "That the Association shall hold twelve meetings in the year, on the second Tuesday in each month; said monthly meetings to be devoted exclusively to the reading of essays and the discussion of topics connected with the principles and practice of the profession and collateral sciences."

The attention of the Association was directed to a method invented

by Dr. Clark, of Augusta, Georgia, for obtaining the male metallic die direct from the impression, without the use of a plaster cast. On motion, a committee consisting of Drs. Suesserott, Woodnut, and Townsend, were appointed to examine the proposed invention and report at a future meeting.

On motion, adjourned.

A monthly meeting of the Association was held on the evening of December 20th, 1859, at eight o'clock.

President, Dr. Dillingham, in the Chair. Present, Drs. Garretson, McQuillen, Woodnut, Fitch, Van Osten, Peirce, Perrine, and Barker.

Dr. Calvert, having been appointed to read an essay at this meeting, was unprepared. The subject of discussion being

"THE DIFFERENT METHODS OF PREPARING AND USING GOLD FOIL IN FILLING TEETH,"

was opened by Dr. Peirce, who said his object in proposing the subject was not for the purpose of expressing his own views, but to learn the experience of other gentlemen in the profession on this important topic; but, in order to bring it directly before the Association, it would not be out of place to briefly allude to the preparation of gold foil which, with him, had been the most successful, and also the manner of preparing and introducing it into the cavity.

He had for years been using the non-adhesive gold foil, and believed in its uniform malleability, also possessing that rare and necessary quality, ready adaptation to the walls of the cavity, to secure which is one of the most essential points in an operation. His manner of preparing the gold was in pellets and cylinders rolled loosely, and of various sizes, in proportion to the size and situation of the cavity to be filled.

Dr. Fitch would say that the best method of preparing gold foil for filling teeth had cost him much thought, and had been a subject of trial and experiment for some years. Having enjoyed the acquaintance of many distinguished dental operators in this country, he had become somewhat familiar with their different modes of preparing gold for filling teeth, and had given each method a thorough trial in his own practice.

He had also used the different kinds of gold, viz., the crystal, the non-adhesive, and adhesive foil, prepared in ropes, pellets, blocks, cylinders, etc., and supposed at each change that he reached a preparation far preferable to any previously used; and had, indeed, reached, with some of these modes, at least the perfection aimed at in every filling.

He had arrived at this conclusion, that every dentist should be "eclectic" in his practice, especially in everything pertaining to the preparation of gold for filling teeth; his good practical common sense should guide him in the choice of that particular form of gold, which he may select in

any given case, that will best subserve the objects which he may have in view, viz., great density, uniformity, and consequent finish, with the least fatigue and pain to the patient.

He thought it evident to every one of limited or extended experience that it is very necessary that gold, used in any form, should be kept dry during the process of filling, especially is it so with the use of adhesive gold.

Very much has been said and written about the superiority of gold, from this or the other manufacturer; there is certainly a great difference in gold coming from the different makers, and he had often found the gold to be quite different from the same manufacturer. He liked gold of a medium temper, meaning, by this expression, gold that is soft and easily adapted to the cavity and at the same time adhesive. He sometimes obtained a book of gold having these qualities, and indeed this would be a great desideratum to the profession, if our gold manufacturers could reach this point more uniformly.

There is some gold which, even with delicate manipulation, the instrument slips over as though it presented a greased surface; probably this condition is owing to the moisture gathered from an exposure to the atmosphere; whenever this is the case, it should be dried before using. The soft non-adhesive foil is much more desirable for filling fangs, and is also well adapted when cylinders are to be used.

He had recently used, with good success, crystal gold foil; it was an adhesive foil, but he was unable to state that it was superior to the adhesive gold foil of other manufacturers, as he had used none from them. In filling a tooth, he did not depend wholly upon this adhesive quality of the gold, but depends very much upon the opposing walls of the cavity; yet all the advantage that can be gained by adhesion he availed himself of; he therefore preferred the adhesive foil; he found no difficulty in its use; in bridging or choking the cavity this is possible, but with care there is no necessity of it.

In filling an approximal cavity, he always commenced with a cylinder adapted to its size, and finished with a pellet or the rope, as is most convenient; and sometimes had finished off a filling with the leaf. In some mouths he had found it very difficult to make good fillings with gold in any form, owing, as he supposed, to a peculiar condition of the secretions or breath destroying the adhesive quality of the gold.

It is maintained by some that adhesive gold cannot be made as solid or compact as the non-adhesive, or, in other words, "more non-adhesive foil can be introduced into a given cavity." How it was he could not say, never having made any experiments as tests; but of this he was certain, that a sufficient quantity of adhesive gold could be introduced into any cavity to protect it from decomposition or decay. Experience and practice with either kind tends to facility in manipulation and to perfection in results.

In regard to the use of crystal gold, he would say that he had used it considerably, and in most instances had succeeded beyond his expectations; in one case, in building an entire tooth upon a central incisor root, the results were very satisfactory; he had never been troubled with the results complained of by some operators, "a softening and discoloration of the surrounding dentine;" he had observed that two things were necessary to insure success: the gold must be thoroughly protected from the secretions of the mouth and as much as possible from the breath of the patient, and great care must be taken that particle be welded to particle, and this last may be attained by using small serrated instruments.

A much more thorough and delicate manipulation is required with this material than with gold foil to make equally good fillings.

Dr. McQuillen said, it was an unquestionable fact that gold foil, properly prepared by the manufacturer, has always been adhesive. If such was not the case, how could we account for the solidity and durability of fillings introduced many years ago, from some of which large portions of the walls that formerly surrounded them have broken away without affecting the integrity of the operations. He directed attention to this particularly, as great stress is laid by a portion of the profession upon the advantage and necessity of employing, exclusively, gold foil presenting that peculiar character formerly known as "annealed," and now called "adhesive foil;" a condition of foil which, he had been informed by the most prominent manufacturer of that article in the world, in former years had caused him more trouble than a little, as over and again operators of well-established reputation had returned foil presenting that characteristic, stating that they could do nothing with it; and that the aim and constant source of solicitude in his establishment had been (until this came to be regarded as a desideratum) to prevent the foil from assuming that condition.

The peculiarities presented by this preparation were, according to his observations, a decided tendency to adhesion when two particles are merely brought in contact with each other, and, when introduced into the cavity, after the first stroke or two of the instrument, instead of retaining the soft and malleable quality so desirable in foil, it assumes a cast iron condition, rendering an easy and successful manipulation entirely out of the question, and preventing him from introducing a filling that he could feel assured would preserve the organ under treatment. Though he had in former years made this the subject of careful experiment, and felt pretty well assured of the correctness of the views advanced, he nevertheless would be glad to make all due acknowledgment, if more accurately conducted experiments should prove them to be erroneous.

The quality of foil that had always appeared to him the most desirable was that kind so well described by Dr. Dunning, some time back, as the kid-like condition, free from all harshness, and presenting a soft, velvety

feel, and a sufficient amount of adhesiveness, so that when a particle is brought in contact, on the point of an instrument, with a portion that has been introduced into the cavity, it will adhere, and yet be so tough and malleable that it will bear considerable manipulation in consolidating it. With such foil he had no difficulty in operating, and on many occasions, when demanded, had built up fillings far beyond the margins of the cavities, and had built, on the surface of a piece of coin, gold foil in the shape of the crown of a bicuspid tooth.

Of the different forms of preparing foil, prior to filling a cavity, he had, in former years, employed the rope, but soon abandoned it, as he found that he could manipulate with more satisfaction and benefit to himself by employing pellets. These he formed by first tearing leaves of No. 5 foil into two, three, or four slips, as required; then rolling these loosely into ropes and cutting each, with small scissors, into six or eight pieces. In introducing them into the cavity, they are taken up, piece by piece, and the effort made to make the filling compact from the bottom to the top. Had not used cylinders much, but regarded them as very valuable in certain localities. Though not using the rope, he knew some practitioners who employ it exclusively, and whose operations are of the highest order.

Dr. Barker thought there could be no positive methods adopted in the preparation of gold for filling, as almost every cavity required the gold to be introduced differently. He had used the adhesive gold, and had found it objectionable, and had discarded it for non-adhesive foil. But in rolling up a sheet of gold into a rope, it was his custom to pass it through the flame of the lamp, not for the purpose of annealing it, but to remove the moisture that would accumulate upon the gold in rolling the sheet; he would then cut the rope into pellets, using small-pointed pluggers to pack each piece. In the cavities found upon the approximal surfaces of the bicuspid teeth, he was in the habit of using a cylinder flattened and placed at the top of the cavity, allowing it to extend beyond the margin of the cavity, and then packing pellets on to this piece. In those cases where the decay extends above the margin of the gum it is particularly adapted, as it prevents the moisture from passing down upon the gold while filling; the cylinder can then be easily cut away, leaving the filling perfect at the neck of the tooth, which is in too many cases the point most imperfect. He thought that we were in the habit of using the plugger too much upon those pieces of gold that are perfectly welded, but we should carry our gold to the point it is wanted and then pack it there. If the gold that is well condensed is gone over repeatedly with a fine-pointed plugger, the polarity of the particles of gold will be destroyed and the attractive force of one particle for another will be lessened. He would not be understood, however, as advocating soft instead of solid perfect fillings, but thought one cause of the crumbling of gold fillings was due to this.

Dr. Garretson has, during the past few years, tried all the different makes of gold foil. From some manufacturers he procures it, as he deems, in perfection; but they do not, or cannot, make gold foil perfectly regular; an occasional lot makes practice really discouraging—the gold will neither pack well, finish well, or stand well.

He could readily appreciate the difficulty the manufacturer must have in securing an exact condition or point in his gold. It had been his experience that all manufacturers make first-class gold foil occasionally; the great matter is to deal with the man who can give us this “occasionally” the oftenest; at least that was the great matter with him; the gold might come to him under any name.

All bad work is not, however, to be laid to the account of poor gold. The operator's feelings have an influence, as also the condition of the instruments; there is also a peculiar moisture in the breath of some persons that makes it an impossibility to make good operations with gold. All gold work should be kept perfectly dry until burnished.

He requested every patient for whom he operated to breathe through the nostrils until his work was finished.

In filling approximal surfaces, he almost invariably cauterized the gum about the neck of the tooth with *zinci chl.*; this, for the time, suspends the action of the mucous crypts of the part.

One may get hold of a lot of gold which has neither ductility or tenacity, and may give it both by a very slight annealing.

He had good evidence of this in his practice, that his foil would not work; it broke up, and had no adhesiveness; it was No. 4, unannealed. When good, it adheres piece to piece readily and solidly. For experiment's sake, he took one of his ribbons and with his plugging forceps held it for a moment over the hot coals; it came out perfection; he had never done better work than with this foil.

Such a course, however, will not always make poor gold good. He had tried the same operation with other lots, and destroyed the few good qualities they previously possessed. In one case the gold had been annealed by the manufacturer scarcely enough, while in the other it had been burned; or at he least supposed such different conditions to have existed.

A very adhesive gold foil is objectionable or desirable according as it is worked. Adhesive foil will make a plug that looks very solid, yet which may be just the reverse. He thought the adhesive foil should be worked as the sponge gold is worked; the plug built up piece by piece from the bottom of the cavity.

He thought he could tell first-class gold the moment he pressed it together in his fingers. It has a kidlike feel, and the folding is attended with a soft crackling. Perfectly good gold may be destroyed for dental purposes by breaking down its fibre; he never rolled his gold into ropes

or pellets, but pressed it gently into a very loose ribbon; this preservation of the fibre he conceives to be one of the most necessary precautions in practice; it preserves admirably the adhesive quality of the gold.

With unannealed gold, he believed, as a rule, he can make the best and most beautiful fillings; it yields a surface in finishing that he thinks is not to be easily attained with the annealed.

Dr. Dillingham, in reply to a question, stated that he considered the gold which he had used twenty years ago to possess the quality of adhesiveness. He had used the annealed gold, but discarded it for the unannealed.

Dr. Woodnut first learned to fill teeth with annealed gold, and used it exclusively until within the last six months, preparing it in a variety of ways. At one time used cylinders for all cavities, making them of different sizes, and rolling them closely upon a fine brooch. Has tried the rope, but objects to its use for several reasons: it obstructs the view of the cavity; he cannot see just where he is putting each piece; cannot join one piece to another thoroughly, which he believes to be essential to a perfect filling; the end is liable to get wet, in fact it is very difficult to prevent it from doing so.

Is now using what is called the non-adhesive gold, preparing it in pellets and plates or blocks; uses cylinders in large cavities generally, and almost always for crown fillings, finishing the operation with pellets.

Greatly prefers the non-adhesive gold; thinks he can get more in the cavity, make a better operation generally, and obtain a finer polish. When the mouth is difficult to keep dry, and when the breath interferes with the operation, uses napkins in such a manner as to protect the filling as much as possible.

Dr. Van Osten had but little experience in the use of annealed gold; he had, however, used the crystal gold, and at first was not successful, but the failure was due to the fact that his instruments were not adapted for that material; he had changed his instruments, and had then met with good success in its use. He thought much of the failure with crystal gold was due to the instruments, as well as the different methods of working crystal gold. He had for a length of time used, almost exclusively, the rope in filling; it was, in fact, the way in which he had learned to manipulate; he had never had any difficulty in its use. He now employs the block and rope in commencing the filling, and finishes with pellets. He was in the habit of using fine-pointed instruments, some, indeed, having eight points. In the hands of a skillful operator, the rope can be used with excellent success. He knew of one practitioner who had filled a cavity, in which he had placed two and a half sheets of gold, in the space of fifteen minutes; it was done with the rope, and was a perfect filling. He thought much of our success depends upon the way we feel, our chair, and particularly upon our patient.

On motion, adjourned.

MEETING OF THE MICHIGAN DENTAL ASSOCIATION.

THE following is a synopsis of a report (furnished to us by the secretary) of the proceedings of the fifth annual meeting of this Association, which convened in the City of Detroit on Tuesday evening, January 10th, 1860, at seven and a half o'clock, and was called to order by the President, Dr. Porter, of Ann Arbor.

The minutes of the last meeting were read by the secretary, and adopted.

The committee on candidates for membership reported in favor of the following named persons, who were unanimously elected: Drs. J. S. Corbin, of Ann Arbor; W. Y. Cleland and G. M. Cole, of Detroit; L. A. Rogers, of Grand Rapids.

The officers of the ensuing year are, Dr. C. S. Chittenden, of Hamilton, C. W., President; Dr. Wm. Cahoon, of Detroit, Vice-President; Dr. L. C. Whiting, of Detroit, Secretary and Treasurer; Drs. H. Benedict, J. J. Farmer, and T. A. White, Executive, Examining, and Publishing Committee.

Several essays were read on difficult dentition and the effect of diseased teeth and gums on the general health of the system, after which a discussion was entered into which elicited much interesting information.

On motion of Dr. Porter, a committee of six was appointed to write essays on different subjects for discussion at the next meeting. The following are the committee, with the subjects on which they were appointed to write: Dr. Whiting, on the effects of diseased gums and teeth on the general health. Dr. Porter, on difficult dentition. Dr. Farmer, on neuralgia and rheumatism. Dr. Mansfield, on mechanical dentistry. Dr. Cahoon, on dental etiquette and fees. Dr. Chittenden, on second dentition.

Drs. Whiting and Cahoon, of Detroit, were elected delegates.

They have power to appoint substitutes in case they cannot attend. One-half of the traveling expenses of delegates to be paid by the Association.

On motion of Dr. Mansfield, it was resolved that no member of this Society shall take a student into his office and engage to teach him the practice of either department of dentistry in a less time than two years; and all such students, during their pupilage, shall have the privilege of attending the meetings of this Society, but shall take no part in its deliberations.

Dr. Atkinson, of Cleveland, read an address to the Association.

On motion it was resolved that when the Association adjourns, it does so to meet at Ann Arbor, the second Tuesday of January, 1861.

A vote of thanks was given to those members of the profession who have sent their fee-bills for the benefit of this Association.

On motion, adjourned.

EDITORIAL.

LANCING GUMS IN EXTRACTING TEETH.

WE have long since desired to make some allusion to this subject, but could not for want of time and space; nor do we now intend to do more than give it a practical consideration. It is believed by many that lancing the gum before attempting to extract a tooth is unnecessary; to this we cannot agree; yet we do not at present intend to advocate the existence of the "*ligamentum dentis*." It is urged, first, that it gives useless pain, and, secondly, that it alarms the patient; this latter is a matter of policy, and the former in the majority of cases untrue. We can understand that in some cases where there is undue sensibility from an inflamed state of the gum, that pain may be spared and a tooth safely extracted; but as a rule, the practice does not hold good. We could detail a vast number of cases where dentists have failed to successfully extract a tooth from not lancing the gum sufficiently, or not at all. There may have been a time—when every aching tooth was extracted, where the whole crown nearly was remaining, except a small cavity exposing the pulp—that many operations of extraction were successful; but not as a general rule, in cities at least, because the principal operations of extracting are roots, or teeth so much decayed that lancing the gum is necessary to get hold of them with a forceps, and in a great number of cases a strong lancet only is required to dislodge the offending member. We use two sets of lancets—a thin-bladed one to cut the gum, and a strong and thicker one to cut away the alveolus. We cannot help believing that every fibre of the gum or periosteum that is cut facilitates the easy removal of a tooth, and in many cases where that is done, the membranes of the sockets are stronger than the tooth, and it is necessary to force a lancet between the margin of the alveolus and the root to break up their attachments, before the tooth can be removed. We do not now extract a great many teeth, for want of time, when the patient is in the humor; hence, many patients apply to us for setting teeth after the mouth has been prepared, and we have ample opportunity of seeing how much of the gum and thin portions of the sockets have been torn away for want of care in cutting the roots loose before the extractions were made. It should be the aim of the dentist, when extracting teeth preparatory to setting artificial ones, to preserve as much of the gum as possible, and the sockets unbroken. It is not unfrequent that the anterior alveolar plates of the front teeth are so thin a little way below their margins that they break off when the teeth are extracted, the periosteum being stronger than the thin plates of bone. A great many call this *anchylosis* or ossific union; but it is not so; we do not believe in such a thing existing between the root

of a tooth and its alveolus; we have been looking for a specimen for over twenty years, but have failed to find one. When it is discovered that such a difference exists between the strength of the bone and the periosteum, a thin lancet should be used to separate all the front teeth from their sockets, at least half way down the roots, before an attempt at extraction is made. It would seem that few dentists know how to cut the gum to prevent its being broken or torn through opposite the roots, either by passing the forceps on to the tooth, or by its roots when leaving the socket. It is not sufficient to merely detach the gum from the neck of a tooth; the lancet should be carried beyond the tooth both ways, cutting the gum back and front of the tooth to form a flap which will open to let the instrument down on to the neck of the tooth, or even on to the root, afterwards cutting away the margin of the alveolus, when that is necessary. If this kind of incision is not made, the gum running between the teeth attaching the anterior with posterior flap will prevent the proper adjustment of the instruments. This principle, of course, applies as well to the back as to the front teeth.

We will refer to a case of recent occurrence, which strongly illustrates what we mean by lancing the gum. A very large and robust gentleman called on us, a short time since, in a state of frenzied agony, from intense inflammation resulting from the eruption of an inferior wisdom tooth; the gum and the parts adjacent were considerably swollen, so that only a portion of the surface of the crown could be seen, and the mouth with great difficulty opened sufficiently to pass a small forceps or a lancet back to the tooth. We never saw any one express such suffering. He came to us from a dentist who, we know, as a general thing, is a good operator, but he had tried in vain to get hold of the tooth, his forceps having slipped off at every attempt at extraction. We passed our lancet in and made a long incision on the lingual and on the buccal sides of the tooth; the flaps thus formed let our forceps down with facility to the neck of the tooth, which was removed without difficulty.

J. D. W.

REFORMATORY MOVEMENT IN ENGLAND.

It is a matter of regret that the difference of opinion with regard to reformatory measures which divides our English brethren into two parties should be permitted to assume so much of a personal character, on the part of some of the contributors to the journals published there. While a free and independent expression of opinion on this all-important subject is calculated to throw much light upon the matter, and eventuate in decided benefit to the profession, the indulgence in criminations and recriminations on the part of individual members not only widens the breach that already exists, but also diverts the attention of writers and readers from

the main objects that the profession should ever have in view—the advancement of dental science and art, and the cultivation of pleasant relations among its practitioners.

No stronger evidence can be manifested of a *small* mind, contracted views, and ill breeding, than an indulgence in personalities; or of a *weak intellect*, than in responding to them. Earnest seekers after truth, who battle for the good of the profession regardless of friendships and enmities, ever prefer to be the *objects* rather than the *agents* of such practices.

That the feelings which prompt such effusions find but a limited response in the breast of the profession, is proved by the excellent editorial in the November number of the Review, and various articles that have appeared in each of the magazines from time to time deprecating such practices.

Though the present prospects of a reconciliation are not encouraging, it is earnestly to be desired that a union may yet take place; and we trust that the wish expressed by Dr. Richardson, at a dinner given in celebration of the inauguration of the school with which he is connected, may be realized. In the course of the speech he said:—

“Apart, however, from my present position, I do say most sincerely that I wish the dental profession every possible success; and if, standing aloof from what has been done, I could act as a kind of centre, tending to bring you all together, and thus to make you a more powerful and united body, one of the proudest objects of my ambition would be accomplished. It would give me great pleasure indeed should I be enabled to remove some of the difficulties which now separate the dentists into two parties, as it were; for I see no reason why you should not be an united body—the College performing the part of instructors, being the teaching and examining body, and the Odontological Society being regarded as the learned body, but recruited from the ranks, homogeneous with you, and guiding and fostering the learning of the time.” * * *

Again he remarked:—

“If one thing more than another has tended to elevate dentists in America, it is that they early saw the necessity for the establishment of colleges and schools: and in that particular it cannot be denied that the Americans have been far in advance of their English brethren. If any great organization is to be lasting, it can only be by educating the rising members of the body *up* to the level of that organization. It was said that when Harvey discovered the circulation of the blood, there was no man beyond forty years of age who believed in it; yet every man *had* ultimately to believe in it, and to go into a kind of training for that purpose, and from that time forth—the right principle being once established and taught—the medical profession has gone on advancing. You have now established a scientific organization; and if that organization is to endure, you must educate *up* to its full standard.” * * *

If it is found impossible to effect a reconciliation, why not agree to disagree, and vie with each other only in the aim to accomplish the greatest amount of good possible for the science and art of the profession?

J. H. M'Q.

REVIEW OF DENTAL LITERATURE AND ART.

BY J. H. M'QUILLEN, D.D.S.

TRANSUDATION OF THE LIQUOR SANGUINIS.—In the animal and vegetable kingdom, by the circulation of nutritive fluids through a system of vessels or passages adapted to the purpose, the materials inservient to growth and renovation are conveyed to every portion of the organism of each, and at the same time the particles liberated by disintegration or waste of tissues are also removed.

No central organ to assist in the circulation of the sap is found in the vegetable; but microscopic observation has proved beyond a question of doubt, in particular classes of plants, the existence of a system of anastomosing vessels termed *laticiferous*. The fluid contained in these vessels can be seen in rapid motion, if a piece of the bark or the leaf of a milky plant be cut out and placed under the microscope. In the absence of the propulsive force of a heart, the circulation of the sap is attributed to the combined influence of *vis a tergo*, *capillary attraction*, the influence of light and air upon the leaves, and the affinity between the elaborated sap and the tissues of the plant.

The organs and canals by which, in the animal economy, the circulation of the blood is accomplished, constitute the vascular system.

Two distinct circulations—the greater and the lesser, also named, first, the systemic or nutritive; second, the pulmonic or respiratory, with a heart for each—are presented in man and the higher animals. Though, for economy of space and material, the right and left heart are brought together so as to form apparently but one organ, and are spoken of as such, they are, after the embryonic period, entirely distinct and separate in their functions; the one receiving and propelling the arterial, the other the venous blood. From this organ as a common centre the two circulations arise and terminate, each system having its own set of arteries and veins connected at their peripheral extremities by the capillary vessels. The rhythmical motion of the heart is the chief impelling power of the circulation of the blood; superadded to this, however, the contractility of the muscular coats of the arteries, the *capillary power* resident in the fine tubes connecting these with the veins, and the *vis a tergo*, assisted by the *vis a fronte* or the suction power of the heart, in the latter, are active forces.

As the object of this communication is mainly to consider the transudation of the liquor sanguinis through the parietes of the capillary vessels, this brief survey of the circulation is presented preparatory to defining the relation which these vessels bear to the sanguiferous system, and the various organs and tissues of the economy.

The point at which the arteries terminate and the minute veins commence cannot be exactly defined, for the transition is gradual; microscopic observation, however, proves that the minute arteries do not *terminate by open mouths*, as was formerly supposed, but that they communicate directly with the veins by means of the capillaries. Unlike the arteries and veins whose calibre diminish in one direction, these vessels maintain throughout their entire course the same diameter. In the different textures of the body, however, the calibre of these vessels varies somewhat, the largest being found in the skin and medulla of the bones, and the smallest in the brain and the mucous membrane of the intestines. The average diameter being 1-3500 of an inch. Many physiologists formerly doubted the existence of membranous parietes in the capillary system; but the evidence presented in minutely injected specimens—in the web of the frog's foot, the tail of the tadpole and of young fishes—when placed under the microscope, along with the fact that fluids injected into the arteries pass directly into the veins, proves the incorrectness of that opinion. Schwann even claimed to have detected a muscular coat in these vessels.

The number of the capillaries and the amount of space between them determine in general the degree of vascularity of a part. Thus in the lungs, the network of capillaries are closer and the interspaces smaller than any other portion of the body. In the liver, the interspaces are of the same size, or even smaller, than the vessels themselves; and in the kidneys, the proportion of the latter to the former is as one to three. The brain, though receiving a very large quantity of blood, the capillaries are very small and less numerous than in some other parts, and the interspaces are therefore, comparatively speaking, large. In the periosteum, and especially the bones, the spaces are still greater. Lastly, human dentine and cartilage are regarded as *non-vascular* tissues, as no vessels pass into them.

As a general rule, the more active the functions of an organ are, the more vascular it is. Hence in all glandular organs, and in mucous membrane, the vessels are numerous and the interspaces small, while in periosteum and bone the reverse condition is presented; and in dentine and cartilage, where the organic changes that occur take place very slowly after they are once formed, vessels are entirely absent.

Strictly speaking, all tissues are extra-vascular, and the difference between *vascular* and *non-vascular* tissues is only one of degree, as the elementary structure is outside of the vessels, in all parts alike. Thus, in bone, the capillaries do not penetrate beyond the Haversian canal; in the tooth, the parietes of the pulp cavity and the superficies of the root; in muscle, the sheath of the ultimate fibre; and in the nervous tissue, the membrane investing the tubes.

As the capillary vessels have distinct parietes, it follows as a necessary

sequence that the liquor sanguinis, in which the materials inservient to the nutrition of these tissues are suspended, can only escape by *transuding through* their walls. The fallacy of the hypothesis that vessels terminate by open mouths, has already been alluded to; and it may be added that the existence of such an arrangement is unnecessary in the explanation of the function of nutrition, as all that each tissue requires of the vessels is, that the blood should be brought so near to the active elements of the tissues that some of its fluid part may be *absorbed* or *imbibed* by them—and the distance through which such imbibition is effected is not always small. In bone, for example, where we have found the vessels quite far apart, the substance which is farthest removed must be nourished by imbibing fluids through the space between them; the lacunæ and canaliculi connecting with each other, and with the Haversian canals, facilitate this operation. The most satisfactory explanation of the capillary circulation, and of nutrition as an *extra-vascular* action, is that advanced by Prof. Draper, of which the following is a brief summary:—

“Experiments on inorganic bodies show that if two liquids communicate with each other through a capillary tube, for the walls of which both have an affinity, this affinity being stronger in the one liquid than in the other, a movement will ensue; the liquid which has the greater affinity being absorbed most energetically into the tube, and driving the other before it. Now this is precisely what seems to take place in an organized tissue that is penetrated by a fluid, between whose particles and those of the tissues which it penetrates affinities exist. These affinities are continually being newly developed by the acts of growth, as fast as those which previously existed are satisfied or neutralized by the changes that have already occurred; and thus, in the circulation of the nutritive fluid there is a constant attraction of its particles toward the walls of the vessels, and a continual series of changes produced in the fluid as the result of that attraction. The fluid which has given up to a certain tissue some of its materials no longer has the same attraction for that tissue; it is, consequently, driven from it by the superior attraction then possessed by the tissue for another portion of the fluid which is ready to undergo the same changes, to be in its turn rejected for a fresh supply. Thus in a growing part there must be a constantly renewed attraction for that portion of the nutritive fluid which has not yet traversed it; while on the other hand there is a diminished attraction for that which has yielded up the nutritive materials required by the particular tissues of the part, and thus the former is continually driving the latter before it. But the fluid which is repelled from one part may still be attracted toward another, because that portion of its contents which the latter requires may not have been removed from it. In this manner the current is maintained throughout the whole capillary network, until the blood is entirely exhausted of its nutritive matter.”

Those tissues, however, which receive no vessels into their own substance, and are nourished therefore by the fluids absorbed from the vessels of an adjacent vascular part, are the instances in which such imbibition is effected through the greatest distance. Thus, the articular cartilage derives its

nourishment from the subjacent bone, the cementum from the vessels of the periodontal membrane, and the dentine from those of the pulp. In the last-named tissue, the tubuli opening as they do upon the walls of the pulp cavity, their contiguity to each other, their division, subdivision, and anastomosis, and the capillary attraction resident in those tubes, afford the most admirable arrangement that it is possible to imagine for the circulation of the liquor sanguinis in every portion of the structure. Indeed under such circumstances it would have been a work of supererogation to have placed vessels there.

(To be continued.)

HYPNOTISM. — Considerable publicity has been given by the press throughout the country to a communication made by M. Velpeau, to the Académie des Sciences, of a recent discovery that insensibility (or hypnosis) can be induced by looking fixedly at a bright object (a piece of coin, for instance) held four or five inches from the eyes. It is asserted that a person whose vision is thus concentrated will fall into a state of anæsthesia or catalepsy in the course of a few minutes. While there can be no question that such a condition can be induced in this manner, it is not, as M. Velpeau imagined, a new thing, and, in fact, is but the revival of a method suggested by Dr. Braid ten years ago, and, like mesmerism, psychology, etc., recent experiments, carefully conducted in Paris, have demonstrated that it is by no means uniform in its results, and has no practical value in operative surgery.

Aside from the possibility of developing a train of nervous affections, one objectionable feature connected with this practice, that has impressed us, is the danger of establishing strabismus. When recalling instances, that must have fallen under the notice of every one, where that affection has been developed in children who, for the amusement of their companions, have indulged in the habit of looking, to use the popular expression, "cross-eyed," or again in the case of infants, where the same difficulty has been produced by having the vision fixed upon a tassel or some other small object suspended over the head of the child from the top of the cradle, it is no stretch of the imagination to suppose that the same results may supervene in experiments such as that above, as the eyes are crossed during the entire operation; the liability being increased by the development of the cerebral difficulties referred to *en passant*, the seat of which pathologists agree in locating at the base of the brain.

DENTAL REVIEW, LONDON—NOVEMBER.

METROPOLITAN SCHOOL OF DENTAL SCIENCE — WE are gratified to learn that this school has entered upon its first session under the happiest auspices, the matriculating class numbering at least twenty-five. Our

limited space does not permit the publication of Dr. Richardson's admirable Introductory in toto. After describing, in an eloquent and terse manner, the principles upon which the institution is founded, and the curriculum of instruction that the faculty will pursue, he offers the following excellent advice to students:—

"From the history of the school and its intentions, I pass now from a general to a particular topic—to the selection of a few phrases addressed purely to the student, his labors, and his prospects.

"I need not repeat what has been said as to the conditions under which the student life may be commenced in this place, nor as to the class of students for whom the instruction is intended. I shall assume at once that my words reach only the ears of the industrious and well-meaning, so that in the way of direction and encouragement there will be required no line from me as to moral conduct or example in life. I want, indeed, only to speak of the way to work, and of the rewards which are offered for work well done.

"The primary principle, then, I would lay down as necessary to success is *Reliance*. Reliance not so much in teachers and books as in the inner self, as in the power of the individual mind to doing and conquering. The student resting on his own strength for action, and on the strength of others more advanced for the supply of knowledge, is already more than half-way on his road to position and honor. In suggesting this reliance, understand that I do not mean by it conceit. Conceit is not reliance on self, but want of reliance in everything that is not self. Conceit is therefore, in truth, a real want of self-reliance; since man is so constituted that his own faith, however great, must, to be applied, be linked, to a certain degree, with the faith that is in others.

"No! I mean by self-reliance such simple trust in industry, in thought, in natural capacity, as shall enable the student to feel that he can work as others work, learn as others learn, and succeed as the best. Or, to put the principle in another light, I mean a negation of doubt, the parent at once of idleness and of failure. The poet has indeed well instructed us when he says—

"Our doubts are traitors,
And make us lose the good we oft might win,
By fearing to attempt."

And the prose poet Bunyan, when he puts his hero into Doubting Castle, expresses with another intention the same truth. Therefore I commend you to steer clear of doubt in the acquirement of knowledge, for by this you will attain the first great secret of learning—simple trust in self and in learning itself.

"But the negation of doubt, or in other words the appreciation of faith as to your own powers, must, to be kept in order, be kept in work, and must be based on the constant and repeated observation of the natural phenomena which it may be your duty to investigate. This thought leads me to the naming of another faculty of mind as an essential one to be cultivated. I will call it *solidity*, as the best synonym for a long definition.

"Now solidity is obtainable in study by this preliminary process, a determination at first to learn all facts and no opinions. In natural studies the possibility of this resolve is easy, because the natural laws and ordinances, in so far at all events as we can comprehend them, are uniform

and stable; or so nearly so that trifling aberrations in details serve only to imprint more firmly on the mind the elementary truth. You, therefore, setting forth in your pursuits with a certainty of precise knowledge before you, may without the least fear throw your whole energies into your labor, with the conviction pre-eminent that by constant and close attention to each fact, and by repetition and repetition, you must learn, and learn well. Leave you this system in your early days, and the smoothness of your course is lost. The apparent true will melt into the absolute false, and the laughing world will drive even hope out of your hearts.

"When the great Columbus set out from Palos to sail into an unknown sea, his companions not appreciating the primary facts on which the faith of their commander was founded, saw ever and anon in the horizon island upon island; they defined the shores, counted the mountains, shaped the bays, and even traced the rivers. These islands their master could never see; and as the little caravels steered on their way the islands melted, (for they were cloud islands,) melted into the thin air. The sailors of Columbus are but the types of those students entering into the domain of natural science, who, fixing their vision on cloud islands, and suffering grievous disappointment as island after island dissolves, lose their self-reliance, lament the day on which they set forth on their wanderings, and offer open mutiny to those who would guide them safely to the goal. I beg you, then, as I wish for your prosperity, to remember this simile, and to be mindful so to adhere in the early part of your careers to the cultivation of positive knowledge, that if it ever be your fate to venture into the open sea, you, like Columbus, may have such a foundation of abstract truth to rest upon as shall carry you stout of heart and reliant until the land of your discovery is in view. * * * * *

"Another mental faculty which I would have you cultivate, is that of *learning by gradation*, step by step from fact to fact, from mastery of facts to their combinations, and from thence to the study of theory, as placed on these facts, single or combined. On this point, the admirable Locke, whose essay "*on the conduct of the understanding*" should be bought by you all as the first of class-books, has an observation which in its depth and simplicity has never been surpassed. Thus it runs:—

"The surest way for a learner in this, as in all other cases, is not to advance by jumps and large strides; let that which he sets himself to learn next be, indeed, the next, *i. e.*, as nearly conjoined with what he knows already as is possible: let it be distinct but not remote from it, let it be new, and what he did not know before, that the understanding may advance; but let it be as little at once as may be, that its advances may be clear and sure. This distinct gradual growth in knowledge carries its own light with it in every step of its progression in an easy and orderly train, than which there is nothing of more use to the understanding. And though perhaps this may seem a very slow and lingering way to knowledge, yet I dare confidently affirm whoever will try it in himself, or any one he will teach, he shall find the advances greater in this method than they would, in the same space of time, have been in any other he could have taken. For the greatest part of true knowledge lies in a distinct perception of things in themselves distinct.'

"I should spoil the whole effect of my proposition, were I to attempt to qualify or to add to so masterly and clear an exposure of its truth and its promises.

"A last principle which I would suggest to you as to be remembered

in your philosophical pursuits, I shall designate *concord*. We may consider this principle as bearing with it two motives, as applying, that is to say, to one's self and one's own studies, and to others and to their proceedings. As applying to your own pursuits, it simplifies them, and strengthens their realities. As in music the word concord suggests two distinct notes, which struck together make a new and perfect sound, as well as an infinitude of such combinations, all in harmony; so in the other sciences the word conveys to the educated mind the unities of science, and the modifications, however endless, which are built of the unities.

"It is indeed by knowledge of this concord, that the man of true genius is separated from the man of ordinary acquirements.

"The latter is always doing the drudgery of detail, learning individual intervals and discovering more. The former puts these together and finds the combinations. The one makes the instrument, the second writes the inspiration. They may both be useful in their way, but I would have you of the first. * * * * *

"Speaking as a scientific man, I know of no class to whom the honors of science are so freely offered as to the dentist. His occupation, at once professional and remunerative, permits of quiet for the most contemplative studies. The medical man; with a load of responsibilities ever on his shoulders, with human life resting on his skill, and anxious friends hanging on his lips for hope, has some excuse if, in the active practice of his special science, he leaves the general. The dentist having no such responsibilities, has no such excuse; and if, with present advantages before him, he allow medicine still to take the lead in general learning, his supineness is unpardonable.

"But, gentlemen, I should fail sadly in completing this day's most refreshing task did I not point out to the student, now for the first time entering his new life, that above and beyond all I have promised him as the reward of his exertions there is a result derivable from them which neither fortune can modify, nor time remove, nor death destroy. I mean that in the studies with which he will grow conversant there is implied a communion with the good and the beautiful, which calms passion, subdues pride, and fills the mind with the ever-constant impression that what is must remain, and that an universal essence from which we are none of us removed, holds all creation in one common bond, and by an universal sympathy."

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BRITISH JOURNAL OF DENTAL SCIENCE—DECEMBER.

The following extract from a letter by Dr. Mackenzie gives some idea of the absolute necessity of a reformatory movement to protect the community and elevate the professional standard. After referring to the unhappy difference that divides those who are engaged in this undertaking, he remarks:—

"Still, the rising generation have to thank the leaders of both parties for giving them two training schools; 'time proves all things;' and they will have an opportunity of choosing that which turns out best; and, unless there be loaves and fishes to fight for, I do not see why we may not be allowed quietly and unmolested to travel the road which best pleases us.

"I have traveled much through England, and find that nearly every

village has a dentist, 'after their kind;' and I can clearly see that many years must elapse ere the ignorant and the unfit can be prevented practicing our art. For it is strange, although true, that country folks, for the most part, prefer the heaven-born to the educated. We therefore find doctoring and dentistry practiced simultaneously with the commonest trades and callings—blacksmiths, gunsmiths, farriers, shoemakers, tailors, jewelers, watchmakers, barbers, oilmen, that is, chandler's shopmen, beer-sellers, twopenny photographists, druggists by hundreds;—I found one sexton, one or two delectable specimens of our present system of education could not sign their own name, and one doing a tolerable practice, who could neither write nor read. When I joined the cause of dental reform, I saw in it a means of curing this evil; for by admitting all present respectable practitioners, however humble their position, we gave them a title to hold by, an inducement to respect themselves, and thereby exalt the art they practice. The rule which excludes persons following any trade or calling in conjunction, was well calculated to decrease this undesirable state of things, the council being particular that none such crept in as members.

"A tone of respectability would thus have been given to all at present in practice, who in time would have been succeeded by their diploma'd sons or assistants. The profession, in course of time, in our case, as in that of the surgeons of old, would have worked its own emancipation, and even during that probationary period the public would have learned to look to the college as the tree from which the good fruit comes.

"But I much fear this bright dream can never now be realized, with the profession divided as it is."

ODONTOLOGICAL SOCIETY.—At a meeting held December 5, 1859, the following able article, which evinces an extended and comprehensive acquaintance on the part of the author with the comparative anatomy and physiology of the teeth, was read before the association by Mr. Mummery. At the request of the members, Mr. M. promised to resume the subject, but desired to be permitted to defer the continuation for two or three months. Feeling a deep interest in this subject, and desiring to increase and perfect a collection numbering over one hundred and fifty specimens of the crania of the vertebratæ, from the fishes up to man, which we have deposited in the museum of the Dental College, we shall regard it as a special favor, if any of our friends who have duplicates of the crania of the lower animals in their possession, which they are disposed to part with, if they will inform us of the genera of the specimens, and the price they want for them.

"ON THE STRUCTURE AND ADAPTATION OF THE TEETH IN THE LOWER ANIMALS, AND THEIR RELATION TO THE HUMAN DENTITION.—The dentition of the lower animals, being almost coextensive with the entire series of the animate creation, embraces so wide a field of study, that I have found considerable difficulty in so treating the subject as to bring it within the allotted limits of the present paper. Viewed merely as a recreation, no pursuit offers more exuberant variety of intellectual enjoyment than that of natural history. Many an hour may thus be profitably occupied, when the mind and body are wearied with daily toil, and many

a solitary walk is beguiled by the new and lively interest which invests the most common objects. Nor are these studies incompatible with diligent application to important duty, while the habits of minute observation which are cultivated cannot fail to be beneficial to any one engaged in a profession like our own. * * * * *

"As there is no deficiency in the works of the All-wise Creator, so there is no superfluity; and the importance of the teeth in the animal economy is evident from the fact that the great majority of animals are furnished with these organs in some form or other; and that where the teeth are not present, some efficient substitute is provided, as in the powerful beak of the carnivorous birds, and the strong, muscular gizzard of the graminivorous tribes. I may add, that this latter arrangement is also found in some of the microscopic moss corals—animals so minute, that a group of fifty are scarcely larger than a good-sized pin's head; and yet each individual is furnished with a gizzard wherewith to grind down the shelly coverings of the still more minute creatures that constitute its food. We may, therefore, reasonably infer that the teeth are designed to fulfill a most important office, and that no animal can be deprived of them without serious derangement of all the bodily functions

"Fossils have been appropriately termed the medals of creation, and the title is emphatically applicable to the teeth.

"From their durability they furnish a guide to the forms of long extinct races, when few other relics are discoverable; and the comparative anatomist is thus enabled to assign claws to one animal, or hoofs to another, with the digestive, nervous, and muscular organization appropriate to the habits and necessities of each. Admirable examples of the application of this principle are seen in the restoration of extinct animals in the gardens of the Crystal Palace.

"It was considered a wonderful achievement of inductive science, when Baron Cuvier thus led the way to the reconstruction of long lost races, and the repeopling of the ancient earth with its contemporary inhabitants; but the science of histology (or the knowledge of tissues) proceeds still further, and the accomplished comparative anatomists of our own country are now enabled, by applying the microscope to the examination of the minute fragment of a tooth, to identify the family and even the genus of an animal. * * * * *

"The teeth of the invertebrate classes present an endless variety of remarkable contrivances, exactly adapted to the particular requirements of each species.

"Did time permit, we might notice the curiously-formed teeth and jaws of the sea-urchin, among the radiates, (one of the lowest types of animal life,) or the diversified forms presented by the horny teeth of insects. The gastric teeth of the crustacea, as in the lobster, might claim our attention, or the formidable apparatus of lancet and saw-like teeth with which the annelides, especially the marine genera, are furnished. But, perhaps, we should find still greater cause for admiration in the multitudinous lingual teeth of the mollusca, whether adapted for rasping vegetable food, as in the periwinkle, or for drilling holes in the hardest shells, as in the whelk and other carnivorous molluscs.

"In this great division,—the animals destitute of either skull or vertebral column,—the arrangement of the teeth is as strange as their forms. The organs supplying the places of jaws are arranged circularly, as in the sea-urchin; vertically, as in the insects; triangularly, as in the leech; or

forming a long flexible ribbon, as in the mollusc, with many other variations to which we cannot make even a passing reference. But when we turn to the higher or vertebrate division, we perceive that the jaws of fishes, reptiles, and mammals, and the bills of birds, are invariably arranged in the horizontal plane, and never exceed two in number.

"It was originally my intention to take a cursory view of the teeth in the several orders of mammals, passing in the ascending series from the horny teeth of that strange paradox, the ornithorhynchus, with its duck-like mandibles and webbed feet, to the more perfect teeth of the higher orders; but as I wish to show their relations to the human dentition, I shall restrict my remarks mainly to the teeth of those animals which respectively exhibit, in greatest perfection, the three distinct types of teeth in the human species, viz., incisors, canines, and molars.

"As the teeth determine the nature of the food, there is a necessary connection between their structure and the development of the organs of touch, on which the degree of ability and address of the animal so much depends.

"The amount of perfection in these organs is to be measured by the number and flexibility of the digits, and the extent to which the nail or hoof incases the extremities. In the ungulated animals, the hoof (entire or divided, as seen in the horse and ox respectively,) envelops the foot, limiting its sensibility, and rendering it incapable of seizing a living prey. Hoofed animals are, therefore, of necessity herbivorous, and they are provided with flat-crowned grinding teeth, adapted to the bruising of roots, seeds, or grass. Animals with unguiculated digits exhibit much greater variety in their habits, and in the nature of their food, and they differ greatly in the amount of flexibility and sensibility bestowed on their extremities.

"The carnivorous tribes are furnished with claws adapted for securing their prey, an organization which has its highest development in the cat tribe,—whose hooked talons being retractile, are preserved from injury, until with unerring force they are plunged into the flesh of the victim. These claws are associated with powerful canine teeth, and instead of flat molars, we find laniary or trenchant teeth, which are capable of cutting flesh after the manner of shears.

"In the rodents, the claws differ but little from those of the carnivora, but these animals are destitute of canine teeth, while the incisors are more fully developed, and are adapted for a peculiar office, that of gnawing, as in the rat and beaver.

"The form of the condyle is necessarily modified, to admit of the diverse movements required for the efficient use of these several classes of teeth.

"The digestive organs are equally connected with the character of the teeth. In the carnivorous mammalia, from the highly nutritious quality of their food, the alimentary apparatus is very simple in form and limited in extent; the entire intestinal canal being not more than three or four times the length of the body. But in the vegetable feeders, the digestive organs exhibit much greater complexity, especially in the ruminants, and the alimentary canal is from twenty to thirty times the length of the body.

"The upper incisor teeth of the lower animals, with the exception of some of the quadrumana, are implanted in the intermaxillary bones, which in man are only found in the foetal stage of existence. The canines,

when they exist, are almost invariably longer than the other teeth, and there is a space between the lateral incisor and the upper canine, permitting the lower canine to shut up closely in front of the upper; thus greatly increasing the efficiency of these teeth, whether employed, as in the carnivora, for securing their prey, or, as in the monkey tribe, for self-defense.

"The molar teeth, which are succeeded by others in the vertical direction, as in the replacement of the human temporary molars by the bicuspid, are called premolars or false molars, while the teeth which are developed in the horizontal plane, and succeed each other from behind, corresponding with the human permanent molars, are called true molars.

"Among all the animals of the order carnivora, the organs of destruction reach their highest development in the cat family; I will therefore take the Bengal tiger as an illustration. The incisor teeth are six in number in each jaw, the outer pair being much larger than the two front pairs, and conical in form, to assist the action of the canines in seizing prey. In consequence of the space between the third or outer incisor, and the canine, the effective power of these teeth is greatly increased, the canines being thus permitted freely to pass each other, and very considerably to overlap the gum in the opposing jaws when closed.

"These canines, conical and incurved, are most formidable weapons, implanted in very deep sockets, which impart great breadth to the face. The molars are four in the upper, and three in the lower jaw, on each side, of which the last in each series is the only true molar.

"The first upper premolar is of very insignificant size, with a blunt crown and a single fang. The second premolar is much larger, of somewhat conical form, flattened laterally, with one or two small lobes, and having two powerful fangs. The third is the true flesh-cutting-tooth; it is deeply notched, and has sharp, flattened cutting edges. The crushing or tubercular true molar is represented in the felidæ by a small oblong tooth placed transversely, but which obtains a far greater development in some other genera of carnivorous animals. In the lower jaw, the premolars are of a compressed conical form, with an anterior and posterior tubercle. The third is the true molar tooth; its crown consists of a sharp blade divided into two lobes, and is the true sectorial tooth, corresponding with the last upper premolar. The teeth are so arranged, that when the jaws are closed the lower teeth shut within the upper row, and their conical points fit into the triangular spaces between the crowns of their antagonists.

"The articulation of the condyles of the lower jaw is so contrived as to set this formidable apparatus in action in the most efficient manner. These processes are both situated in the same horizontal line; they are cylindrical in form, and are firmly locked in the transversely elongated glenoid cavities, the margins of which are so extended before and behind the condyles that all lateral motion is impossible.

"The crowns of these molars, or rather lacerating teeth, are, like the rest, thickly covered with enamel, and when brought into operation, they act like the antagonizing blades of a pair of metal shears upon the substance submitted to their cutting edges.

"The flesh of their victims is swallowed without much division, and is not truly masticated; the food, already animalized, not requiring such preparation.

"If we carefully examine a tiger's cranium, we readily see the machinery by which this terrific apparatus is set in motion. The occipital crest is a sharp and prominent long ridge rising from the occipital portion of the

skull, and continued along the junction of the parietal bones, its chief use being for the attachment of the immense temporal muscles, which would almost entirely cover the cranium, but for their separation by the bony ridge. These muscles have an extensive surface for insertion in the large coronoid process, which forms the entire vertical ramus of the lower jaw.

"To admit of the free action of the muscles, the temporal fossa is continuous with the orbit, the frontal and malar bones not being united as in many other animals; and the zygomatic process extends very widely at a right angle from the temporal bone, in order to give room for the temporal muscle, and to form the long transverse glenoid cavity to receive the condyle, constituting a perfectly hinge-like articulation.

"The zygomatic arch being very large and powerful, and convex above, is carried forward beneath the orbit, the condyle being situated very far back, and in a direct line with the cutting surface of the teeth. This arrangement enables the masseter muscle to act with immense force, its place of insertion being, like that of the temporal muscle, so far in advance of the articulation of the jaw.

"Not only is the muscular power of these animals proportioned to their active habits, but, in accordance with the greater intelligence required, the cranial cavity is large, as compared, for instance, with that of the sheep, while the face is shorter and broader.

"The infra-orbital foramen is very large, supplying nervous energy to the powerful levator muscles of the upper lip, which is thus preserved from injury in seizing the prey, while the uncovered array of teeth strikes the victim with a mortal terror.

"Conscious of their powers, they instinctively aim at some vital part, as the large blood-vessels of the neck, and are thus enabled quickly to overpower animals otherwise capable of effective resistance."

(To be continued.)

AMERICAN JOURNAL OF DENTAL SCIENCE—JANUARY.

ALVEOLAR HÆMORRHAGE.—The following extract from a communication by Dr. C. H. Harvey, describes his method of arresting excessive hæmorrhage following the extraction of teeth:—

"The material used in plugging the socket or sockets, is simply lint, made from old or new black silk cloth. The silk being placed upon the knee, is scraped with a case-knife, until a sufficient quantity is obtained.

Nut-galls, alum, and sulphate of iron are the articles used in dyeing black silk. This lint, so strongly impregnated with these powerful astringents, forms with the blood, in its passage into the socket, a sure and certain compound, for a mechanical stoppage of the hæmorrhage. The mode of introducing the lint is very simple. Take a sufficient quantity to fill the socket or sockets up nearly even with the margin of the gum, lay the lint over the sockets you intend to plug. Take a good strong plugger, that will enable you to carry the lint down to within an eighth or quarter of an inch of the apex of the socket. Introduce the lint continuously, and in quite large quantities. Pack with force enough to make it quite solid. Now let the patient rinse the mouth, that you may ascertain if the bleeding is arrested. If not, use more pressure, and it may be necessary to force more lint by the side of that already there. This plug must be allowed to come away of itself, which will be in five or six days. More reliance is placed upon obtaining a firm plug than upon the astringent qualities of the silk. The dyes of the silk seem to render it capable of adhering together, and of remaining in its place.

PERISCOPE OF MEDICAL AND GENERAL SCIENCE IN THEIR RELATIONS TO DENTISTRY.

BY GEO. J. ZIEGLER, M D.

The Pathology and Treatment of Idiopathic Peripheral Neuralgia.

In a paper upon this subject, read before the Harveian Society of London, and published in the *Medical Times and Gazette*, Dec. 10th, Mr. H. LOBB divides neuralgia into:—"1. Central; 2. peripheral; 3. reflected. Of the central, arising from disease of the brain or spinal cord, he did not speak. The second he divided into idiopathic, traumatic, and neuromatous. The third, reflected, he proposed considering in a future paper. Idiopathic peripheral neuralgia was described as a stabbing, darting pain, referred to the course of a nerve, shooting down the nerve like lightning, coming on suddenly, lasting but a moment, and repeated at intervals: the pain is so acute as to be unendurable if continuous. The part or limb affected by this form of neuralgia is colder, and the skin supplied by the neuralgic nerve is numb, more or less; not tender to the touch, the patient liking to be rubbed—frequently grasping the part with the hands and pressing it; if the neuralgia has lasted any time, there is more or less paralysis in the muscles supplied by the accompanying motor nerve. The author then gave his views at some length upon the generation and distribution of nerve force from the capillary circulation, in order to make his description of the pathology of this form of neuralgia intelligible. He described a sentient nerve as a conductor to the brain of sensation taking place at the periphery. Neuralgia is not, therefore, hyperæsthesia of healthy function. During health a nerve has no sensation proper in itself; if you strike it, or cut or tear it, the sensation is referred to the parts to which it is distributed, but in this form of neuralgia it is the nerve itself to which the pain is referred as darting up and down its course. Mr. Lobb then likened a sentient nerve to an iron conducting-wire of a galvanic battery, which of a certain uniform diameter conducts a given quantity of galvanism without being perceptibly affected by its passage; but if a portion of the wire be much finer than the rest, it becomes red hot, being unable to conduct the whole of the galvanism, the remainder correlating into heat. So in a nerve, if by malnutrition it is unable to conduct normal sensations to the brain, the nerve current, by affecting the polarity of the nerve itself, gives the idea of pain in that portion of the trunk of the nerve, its peripheric terminations at the same time being numbed. The author considered the indications for treatment, therefore, to be increased and healthy circulation, arterial and nervous. After enumerating the usual methods of treatment, he considered the only agent capable of carrying out these indications to be the continuous galvanic current; and he recommended, as the only apparatus that can be worn upon the surface and capable of generating a sustained current, the Pulvermacher chain, producing a continuous current of galvanic electricity in one uniform direction, mild, yet sufficiently energetic for medical purposes. Mr. Lobb then described the method of applying the chain, and exhibited some experiments with its aid,—as the decomposition of water, contractions of muscles, etc. In the treatment of idiopathic peri-

pheral neuralgia, he looked upon the Pulvermacher chain as a specific. Immediately upon adapting the excited chain to the part, a genial and peculiar glow is felt, not mere warmth, but a sense of vitality in the part; the patient is aware of a life-giving agent, and immediately says that he is relieved; the neuralgia disappears, and sensitiveness of the surface returns. The paper concluded with several interesting cases in which the continuous galvanic current afforded rapid and permanent relief."

Operations for Neuralgic Affections. (Ext. from Proc. of N. Y. Pathological Soc., *N. Y. Monthly Rev.*, Jan'y.) "DR. PARKER presented a specimen of neuromatous tumor, removed from the arm of a young man by Dr. Charles K. Briddon.

"The patient, aged twenty-one years, said he, I saw some days ago at Dr. Briddon's request; and I asked him if he would be kind enough to bring the patient to the college, and operate before the class; as I wished to witness the operation and know something of the case afterwards. It turns out to be a neuroma, situated on one of the large nerves of the arm, which, from the symptoms presented, seems to be the ulnar. It is about three inches long, and of a variable thickness, and the nerve can be seen stretching over its surface, and at one point enveloped in the substance of the mass. The tumor was of slow growth, a period of seven years being consumed in attaining its present size. It was examined microscopically by Dr. Wm. H. Draper, and found to be identical in composition with those tumors described by Mr. Smith,—fibro-plastic nuclei, cells and fibres, the fibrous element predominating.

"Dr. Clark supposed such tumors were, commonly, pretty nearly all made up of fibrous material within the neurolema, the nerve itself being spread out in consequence like a sheath, and its fibres separated to a greater or less extent in proportion to the amount of deposit between them.

"Dr. Wood thought that, inasmuch as so small a portion of the nerve was enveloped, the tumor might have been removed and the trunk left entire. Such an operation had been performed by Velpeau.

"Dr. Parker remarked that it would be an interesting fact to ascertain what would in the course of time become of the sensation in the little finger. He had removed a tumor similar to the one presented, from the axilla, and had exsected about two and a half inches from the median trunk of the axillary plexus, which was followed by the loss of power in the thumb and forefinger. The patient was a female about eighteen or nineteen years of age; and after the lapse of a few months she recovered the use of these fingers sufficiently to knit with ease.

"He had also removed about an inch and a half of the posterior tibial nerve from a young man whose great toe was pierced by a darning needle, which broke off, a part remaining imbedded in the flesh. He suffered immensely, and besides had frequent attacks of convulsion. All efforts to remove the foreign body were fruitless; when the operation referred to was performed. The patient was entirely freed from his pain for six months, when he began to have convulsions, and the like, as before. In fact, the attacks of pain were so severe, that the only thing to be done was amputation.

"Dr. Parker stated that the practice of exsection of the nerve originated first with the veterinary surgeons, for horses with tender feet.

"Dr. Jas. R. Wood stated that he had divided the branches of the fifth pair time and again, and the pain would return in spite of everything.

Even in one of the cases where Meckel's ganglion was removed by Dr. Carnochan for neuralgia, the pain after a time returned with as much vigor as before the operation; showing the tendency of the nerve to grow itself and unite.

"Dr. Clark did not think that any deficiency in the nerve matter could be supplied by nerve tissue. ●

"Dr. Peaslee asked Dr. Parker if the amputation was successful?

"Dr. Parker answered in the negative, and remarked that in neuralgia, in regard to the results of section and exsection, he agreed with Dr. Wood. He had cut away the infra-orbital nerve, and even introduced a hot iron wire into the canal, with no other result than staying the progress of the disease for awhile.

"Dr. Peaslee recollected a case of a patient who had a very sensitive point on the dorsum of the foot; the pain was indeed so great and persistent, that the anterior tibial nerve was divided, with the view of giving him relief. This was the case for six months only; when the pain returning as before, he insisted upon an amputation. Dr. P., upon inquiring into all his symptoms, refused to do it; because he was very sure that the pain was in consequence of injury to the spinal cord itself, and did not believe that any amputation would be of service, unless through the small of his back. The patient soon after succeeded in getting some one to amputate his limb and the doctor saw him two or three days after the operation, when he reported himself perfectly free from pain. He (the patient) remained in this condition until the flap healed over, perhaps a month or more, when the pain returned, and has been as severe as ever from that time to this. He always referred the pain to the same part of the foot. This went to show that the disease had its origin in that portion of the spinal column from which the nerve tubes which supplied this part originated.

"In relation to the reproduction of nerve tissue, Dr. P. stated that Kölliker mentions instances where an inch of nerve tissue was reproduced after it was exsected. Dr. P. supposed, that unless the nerve should be traced to the very centre, that it would grow itself; and further remarked, that such a state of things was just as apt to be, as in those cases where bone had been known to have been reproduced without even the existence of periosteum. The length of time required for the nerve to reproduce the portion removed depends upon the extent of the exsection.

"Dr. Dalton suggested that in the case referred to by Dr. Parker, where the nerve was burnt out with a hot iron, it would be interesting to ascertain whether *sensation* returned in the face as before. If you cut off, said he, a nerve, and stop the neuralgia for a time, and then the neuralgia returns again, it does not show that the nervous communication is re-established, unless the normal sensations return the same as before. If you have neuralgia of the face, in which the second branch of the fifth pair is affected, and you divide the nerve on the outside of the infra-orbital foramen, the pain stops for two or three months, and then returns; but if the *sensibility* is destroyed permanently, the pain which returns can depend only upon some disease of the nerve inside of the infra-orbital foramen.

"The question which Dr. Peaslee raised is important. I believe that the way in which the return of neuralgia is generally explained is, that the pain depends upon some disease or injury of the nerve, between the point at which the pain is felt and the nervous centres. In that case, of

course, cutting off the nerve would not permanently cure the neuralgia. And that seems to be the simplest way of explaining the difficulty where amputation of the extremities is resorted to. You have neuralgia of the foot: you take out the nerve, and the neuralgia returns; and notwithstanding you cut off the leg, the pain only ceases for awhile. The simplest explanation seems to be, then, that the pain depends upon some injury of the spinal cord.

"It seems to me that there is another explanation, and one that will also apply to neuralgia of the face. You make a simple division of the infra-orbital nerve; the neuralgia is arrested for a month and then returns. At the second operation, the precaution is taken to make half a dozen cuts; the pain ceases for two months. Next, you run a hot needle into the canal; the patient has a longer interval of ease; then another surgeon goes back to the ganglion of Meckel, and there is no neuralgia for perhaps six months; but it still returns. Now if the pain depends upon some affection of the fifth pair near the Casserian ganglion, or some affection of the brain itself, I don't see why the neuralgia was relieved by the operation at all. It is easy to see why the relief should not be permanent; but why is it even temporary? I believe an operation always does cure temporarily. It appears to me that the disease may be in the fibres of the nerve, say between the infra-orbital foramen and integument. In that case, cutting off the nerve at that point would affect a cure permanently, if the disease had not a tendency to travel from the periphery to the centre. After a certain time it will affect the nerve inside of the wound. If the same affection, which originally produced the difficulty in the nervous fibres outside of the foramen, creeps nearer and nearer the brain, of course the pain will reappear. This seems to me the only explanation compatible with the fact that an operation always relieves the pain for a time.

"Dr. Clark, in that connection, stated that in one case Dr. Mott performed section of the nerve thirty-six times, nearly in the same place, and each time the pain returned; the period of release being shortened in proportion to the number of operations performed.

"Dr. Dalton stated that such a case as that could be explained by supposing that the nerves unite. In cutting a nerve, you have paralysis as the result, but soon both motion and sensibility will return; so far as that goes, the previous explanation would be entirely sufficient, but there are other cases in which it is not sufficient; that is, for example, when a considerable portion is taken out, a greater part of the nerve than we are in the habit of supposing to be reproduced.

"Dr. Peaslee stated that in some instances, as in the first operation of Dr. Carnochan, there could be no doubt that the nerve was diseased in that part. He could not explain a case which occurred to him within the last two years, in any other way. A lady had neuralgia in the bulb of the forefinger of the right hand. This had existed for some twelve years, and in the mean time she had resorted to a great many remedies. Both of the digital nerves were divided on each side of the finger; but the pain came again soon after. Finally she desired that the finger might be amputated, as it was very much in her way, she being unable to touch anything without great pain. The operation was accordingly performed, and the finger removed. It is now two years since, and she has not had a particle of pain since. I can account for this state of things in no other way than by supposing the disease of the nerve was higher than the site of the first operation."

"Operations under Hypnotism in Paris.—M. AZAM, a physician of Bordeaux, has recently come to Paris full of a discovery of a new mode of performing surgical operations during insensibility. New it is not, for he was first led to its investigation by Mr. Braid's writings on 'Hypnotism;' but he has performed various additional experiments respecting it. The subject sitting or lying down, the operator places a mirror a few inches from his eyes, and in such a manner that the eyes are directed strongly upward by the superior recti muscles kept at their extremest point of contraction. In this attitude convergent strabismus is produced, together with considerable fatigue of the eyes. After scarcely two or three minutes the pupils first contract and then dilate, the eyelids first rapidly oscillating and then closing—the patient soon, in act, being asleep. Now are observed two symptoms which are in a greater or less degree almost constantly present, viz., *cataplexy*—in all points resembling the affection so named—and *anæsthesia*, which lasts from three to fifteen minutes, and which is followed by very marked hyperæsthesia. Any of these phenomena may be cut short during their manifestation by friction of the eyelids or by directing on them a current of very cold air. MM. Broca and Follin have repeated this experiment with the same results; and in a case under their care a perineal abscess has been opened during hypnotism without any pain whatever."—(*Med. Times and Gaz.*)

What is Glandular Secretion?—A correspondent of the same journal, under the caption given above says: "Will you allow me, through the medium of your valuable 'Notes and Queries,' to seek enlightenment upon a point of physiology about which I can obtain no satisfaction in any of the modern authorities I possess on this subject? We are taught, as a leading doctrine concerning secretion, that this act, like so many other vital acts, is one of cell-growth; that the cells are born, grow, come to maturity, burst, and discharge their contents. But we know in the case of the kidney it is admitted, that the watery parts of the urine pass off from the renal vessels by the simple physical act of transudation; and what I desire to know is, whether this act of transudation takes place solely in the instance of the kidney? For instance, am I to believe that the fifteen or twenty ounces per day of saliva, of which physiologists speak, are the products solely of this cell-growth of the gland-cells of the salivary glands; that those comparatively small glands, the parotid, the submaxillary, and the sublingual, are capable of thus generating and so rapidly the enormous quantity of cells, which the quantity discharged, and so quickly discharged at one time, would indicate? When we consider the nature of this secretion, that it contains only one per cent. of solid matter, and ninety-nine per cent. of water, is it not more reasonable to think that the great part of this water leaves the blood simply through transudation? Is it reasonable to think that such an immense growth of cell-life would be called into existence merely to discharge water, which so readily passes off by transudation, as in the case of the skin, the lungs, and the kidneys? But on this question, applied not only to this but to other glandular secretions, I can get no satisfaction. Is glandular secretion in all cases—or if not in all in what cases is it—an act partly vital, of cell-growth, and partly of transudation? This is the question about which I would most gladly hear an authority speak."

"*Contributions to Dental Pathology.* By S. JAMES A. SALTER, M.B., F.L.S., F.G.S. The first of the contributions is on the impaction of permanent teeth in the substance of the maxillary bones. It not unfrequently happens that certain of the temporary teeth are found present and firm in the adult mouth, while the corresponding permanent teeth, those which should have succeeded and replaced them, have not made their appearance. In these cases, the presence of the temporary tooth is almost always associated, not with the total suppression and absence of the corresponding permanent one, but with its presence in an abnormal position. Seven cases are described in which this condition of things was found to exist, each of them illustrated by a wood-cut. The histories of several cases are also detailed, in which the capsule of the impacted permanent tooth dilated into a serous sac. One of these cases is also illustrated by a wood-cut. This is a fact not to be lost sight of by the surgeon, that an expanding tumor in the antrum maxillare, or indeed in any part of the maxillary bones, may depend on a serous cyst involving a misplaced tooth.

"The second contribution is on the subject of 'Warty Teeth,' of which an account was given in the analysis of the last volume of *Reports*. This contribution is likewise illustrated by two wood-cuts."—(Ext. from a notice of Guy's Hospital Reports, by W. F. A.—*Am. Jour. Med. Sci.*)

"*A set of False Teeth in the Œsophagus fifteen days.* By A. P. DUTCHER, M.D., Enon Valley, Lawrence County, Pa.—October 28, 1859. Mrs. S., aged twenty-five, just after retiring to rest last evening had an epileptic convulsion, after which she was insensible during the remainder of the night. In the morning she was sick at the stomach, and vomited very freely several times. In the afternoon the sickness left her, and she tried to take some food, but was unable to swallow. The next morning she could swallow water, but nothing in the form of solid aliment. Having now fully recovered her senses, she for the first time informed her friends that she had swallowed her false teeth. I was then called in, and on examination found them lodged in the Œsophagus just above the diaphragm. As I had no throat forceps of sufficient length to reach them, and did not like to force them into the stomach, I told the family they had better call in some surgeon, who would have the necessary instruments for their removal. As they did not cause her any pain, she thought that on the next day she would go to Salem, Columbiana County, Ohio, and have them taken out. She did not, however, go until Monday, the thirty-first. The individual that was applied to had forceps, but none long enough to reach them. He concluded, however, with the consent of Mrs. S., to pass them into the stomach. After manipulating for a few minutes with a gum-tube, he assured her that they were in the stomach. She returned home the same evening. Her throat was not much inflamed from the operation. She thought she could swallow some better. In other respects she was very comfortable.

"On Friday morning, November fourth, she took labor, and had a speedy delivery of a child at term. I did not attend her during the confinement. She appeared to do very well until Thursday, the tenth, when I was again called to see her. She was still unable to swallow anything but fluids. Pulse 90, and respiration 25 per minute. Complained of pain at the inferior portion of the sternum, and under the right scapula. From the pain and difficulty of swallowing, I came to the conclusion that the teeth were still in the Œsophagus. On examination, I found I was correct.

The case now having assumed an alarming character, Dr. John Dickson, of Pittsburg, Pa., was sent for. He came on Friday afternoon. After the most persevering efforts and skillful manipulation, he succeeded in extricating them from the position they had occupied for more than fifteen days. Her throat was very sore for several days; had some fever, cough, and expectoration, but is now (December second) in her usual health.

"The plate was made of silver. It was two inches long and one inch wide, with four teeth upon it. The instruments used in extricating it were a probang and the long throat forceps. The probang was such as is commonly used in cauterizing the throat. A piece of muslin was tightly drawn over the sponge, and secured to the handle; it was then thickly covered with nooses of strong thread. The forceps were fourteen inches in length, and made after the fashion of Weiss's urethra forceps, used by many surgeons for the removal of calculi under a certain size from the bladder."—(*Cin. Lancet and Obs.*)

Salivary Fistula.—"M. GOSSELIN communicated to the Surgical Society of Paris, at its meeting of September seventh, the history of a case of salivary fistula connected with the duct of Steno. He cured the patient by making the operation of Deguise, Sr., with the important modification of Beclard. Some members of the society desired to know if M. Gosselin had received late news from the patient. He stated that the cure still continued, and that the patient was going on well. The following history of the case and operation was given by M. Gosselin: 'The fistula, consecutive to the ablation of a tumor, had existed for five or six months, giving passage to the flow of an enormous quantity of saliva during mastication. It had resisted the employment of divers means.

"About the first of last June, M. Gosselin practiced on the cheek, with a trocar, two oblique perforations, meeting exteriorly at the level of the fistulous wound, separating, on the contrary, from each other on the buccal face. These two openings received the extremities of an iron wire, which, reaching into the mouth and engaged in a *serre-nodud*, permitted the practicing of *ecrasement linéaire* and the section of the bridge between the two internal orifices. This section was completed at the end of an hour at most. The cutaneous wound contracted gradually, and the saliva ceased to escape through the cheek. At the end of ten days, in consequence of a meal, it reappeared in small quantity. It was thought the internal opening had cicatrized too rapidly, when the adhesences which had already formed were destroyed with a sound.

"The salivary fluid again flowed into the mouth. Later, the same accident occurred. Then, to prevent it more surely, a convoluted sound was passed into the internal wound every morning for two days. Twenty days after the operation, the external wound was cicatrized, and the natural course of the saliva was re-established. The patient returned home. Up to the thirtieth of October, when the last news was received from him, the cure remained perfect.'"—(*Ibid.*)

"A Case of Fracture of the Upper Jaw-Bones. By C. S. FENNER, M.D., of Memphis, Tennessee.—Francis Pratt, aged forty-five years, one of the injured survivors of the terrible explosion of the boilers of the steamer Pennsylvania, arrived in this city on the morning of the fourteenth of June, about twenty hours after the accident, and came under my charge,

associated with Drs. Price and Hawkins. Mr. Pratt received a blow on the face from a fragment of the wreck, which divided the soft parts from the zygomatic arch to the centre of the upper lip, and separated the superior maxillary bones, together with the malar bone on the left side, from their bony attachments, except a part of the nasal processes, which were broken off, and remained in place. The upper jaws were separated at their junction, through the alveolar and palatine processes. From Dr. Burton, who was on the boat that brought the sufferers to Memphis, I learned that, when he first saw Mr. Pratt, the superior maxillary bones were turned outward, the grinding surfaces of the crowns of the teeth resting against the mucous membrane of the cheeks. Dr. Burton replaced the bones, but having no attachments except by mucous membrane, they dropped down against the lower jaw, and followed its motions. The inferior maxilla had an oblique fracture on the left side, between the lateral incisor and bicuspid teeth; and, although the articulations were uninjured, the bone remained considerably depressed, owing to the great swelling of the soft parts, and could not be brought to its natural position. The upper jaws were placed in apposition, and kept together by means of a wire twisted around the teeth. The lower jaw was treated in the same manner, a splint of binder's board adapted to the parts, and Barton's roller applied. A piece of cork was placed on each side, between the teeth, to keep the superior maxillary bones elevated to their natural position. At the end of three weeks they were so firmly united as to remain in place without the corks, and in six weeks firm bony union had taken place. The lower jaw did not so readily unite. An abscess formed near the fracture, and the parts became so painful that he could not bear the wire twisted sufficiently tight to hold the fractured ends of the bone together. The abscess was opened, and several spiculæ of bone were discharged, after which the wire was reapplied; but at the time of his leaving here, two months after the injury, bony union had not taken place.

"This case is interesting, as it shows the great injury that may occur to the facial bones, and yet be followed by a speedy recovery."—(*N. Am. Med.-Chir. Rev.*)

Hare-Lip. Case from the Clinic of PROF. MOTT. *N. Y. Med. Press.*—"This was a male child, seven months old. As is usual, it was in the upper lip, a little to the left of the median line. This cleft in the lip was also complicated with a fissure of the jaw. The professor remarked, 'that this form of malformation might be divided into three classes, to wit, simple, compound, and complex or complicated. The cause of this disfigurement is evidently an arrest of development, but what the cause of this cessation may be we do not know; but it is a curious fact that it often occurs in several members of the same family. I have in mind now, one or two women who, in several successive confinements, brought forth children with this deformity; and in the present instance, it seems, of six children which this woman has borne, three presented this fissure; in one instance when she brought forth twins, one was minus a portion of the upper lip, and the other was perfect.'

"Dr. A. B. Mott here proceeded to operate by first dissecting the lip up from the jaw, and then pared off the edges of the cleft by means of a pair of scissors; he then brought the edges together by means of two interrupted sutures, after which a strip of adhesive plaster was applied,

extending from one cheek to the other." This operation is afterwards reported as successful.

"Personal Appearance Improved by Operation.—A girl, who had been the subject of hare-lip on the right side with a broad fissure, and also a split palate, was submitted to a series of operations, until both were closed, by MR. POLLOCK at St. George's Hospital. Her recovery was good, and the result, on the whole, satisfactory. The right nostril, however, was a little flattened, and the lip did not look very sightly, as the gap had been very wide when she was operated upon. She, therefore, returned to the hospital, with a distinct request that another attempt might be made to improve her personal appearance, and render her face somewhat less repulsive. This was consented to, and on the twenty-seventh of October Mr. Pollock removed the old cicatrice, and, by the aid of pins, brought the edges of the wound in contact, with the effect of completely obviating the deformity in the nostril and lip, and thus accomplishing what the girl so much desired. The quantity of skin removed did not exceed that of cicatricial tissue, but it was found sufficient for the purpose. The wound readily healed, and the pins were taken away at the end of twenty-four hours.

"In the same hospital we were shown another case of fissure of the palate, which Mr. Prescott Hewett had endeavored to close two months before, in a female twenty-four years of age. There was palsy of the soft palate, causing the stitches to slough out; but, curiously enough, the edges of the fissure united by suppuration, and it has become almost entirely closed, with the exception of an opening as large as a pea at its posterior third. The voice is still the same as if no operation had been performed; but this, it is presumed, will be remedied by-and-by. The opening is slowly contracting in size, and will probably heal up without any further operative proceeding."—(*London Lancet.*)

"Professional Honorarium in France.—At a general meeting of the medical men and the pharmaciens of the department of the Somme, it was unanimously resolved that the professional remuneration should be raised, because all articles for years past had considerably increased in price. It was also agreed that the system of paying according to the number of visits is highly defective; and that henceforth the medical man should frame his demand upon the following circumstances: 1—The more or less serious character of the complaint; 2, the importance of the operation; 3, the risk run by the medical attendant; 4, the social status of the patient."—(*Ibid.*)

"Results of Practical Schooling.—Of all schools the most prolific has been the school of difficulty. Smiles, in his admirable work on 'Self Help,' says: 'Some of the best workmen have had the most indifferent tools to work with. But it is not tools that make the workman, but the trained skill and perseverance of the man himself. Indeed it is proverbial that a bad workman never yet had a good tool. Some one asked Opie by what wonderful process he mixed his colors. "I mix them with my brains, sir," was his reply. It is the same with every workman who would excel. Ferguson made marvelous things—such as his wooden clock that accurately measured the hours—by means of a common penknife, a tool in everybody's hand; but then everybody is not a Ferguson. An eminent

foreign *savant* once called upon Dr. Wollaston, and requested to be shown over his laboratories, in which science had been enriched by so many important discoveries, when the doctor took him into a little study, and pointing to an old tea-tray on the table, containing a few watch-glasses, test-papers, a small balance, and a blow-pipe, said, "That is all the laboratory that I have!" Stothard learned the art of combining colors by closely studying butterflies' wings; he would often say that no one knew what he owed to these tiny insects. A burnt stick and a barn door often served Wilkie in lieu of pencil and canvas. Bewick first practiced drawing on the cottage walls of his native village, which he covered with his sketches in chalk; and Benjamin West made his first brushes out of a cat's tail. Ferguson laid himself down in the field at night in a blanket, and made a map of the heavenly bodies by means of a thread with small beads on it stretched between his eye and the stars. Franklin first robbed the thunder cloud of its lightning by means of a kite made with two cross sticks and a silk handkerchief. Watt made his first model of the 'condensing steam engine out of an old anatomist's syringe, used to inject the arteries previous to dissection. Gifford, when a cobbler's apprentice, worked his first problem in mathematics upon small scraps of leather, which he beat smooth for the purpose; while Rittenhouse, the astronomer, first calculated eclipses on his plow-handle. In like manner Professor Faraday (Sir Humphrey Davy's scientific successor) made his first experiments in electricity by means of an old bottle, while he was still a working bookbinder. And it is a curious fact that Faraday was first attracted to the study of chemistry by hearing one of Sir Humphrey Davy's lectures on that subject at the Royal Institution. A gentleman who was a member, calling one day at the shop where Faraday was employed in binding books, found him poring over the article 'Electricity' in an encyclopedia placed in his hands to bind. The gentleman having made inquiries, found he was curious about such subjects, and gave him an order of admission to the Royal Institution, where he attended a course of four lectures delivered by Sir Humphrey. He took notes of the lectures, which he showed to the lecturer, who acknowledged their scientific accuracy, and was surprised when informed of the humble position of the reporter. Faraday then expressed his desire to devote himself to the prosecution of chemical studies, from which Sir Humphrey at first endeavored to dissuade him; but the young man persisting, he was at length taken into the Royal Institution as an assistant; and eventually the mantle of the brilliant apothecary's boy fell upon the worthy shoulders of the equally brilliant bookbinder's apprentice.'"—(*Sci. Am.*)

"*On Ossification in Cartilages.* By H. MULLER.—The author, speaking of the so-called ossification by substitution, and not of that of secondary bone, periosteal deposits, clavical, cranial bones, etc., arrives at the following conclusions respecting the order of the phenomena of its development. 1st. That the cellules of cartilage are disposed in regular groups. 2dly. That the fundamental substance is incrustated with calcareous salts. 3dly. This latter is resorbed in the construction of the medullary spaces. 4thly. These increase, encroach upon the cavities of the cartilage, whose calcified walls disappear. 5thly. At the same time that the medullary spaces are so formed, the true osseous substance is deposited. 6thly. This substance, at first a soft delicate stratum, becomes hardened, and finally incrustated with calcareous matter. In this

new layer many cellules are seen, of a stellate form, from the commencement. 7thly. The stellate cavities are owing to the thickening of the fundamental substance around the cellules, and not to the production of canaliculated pores in the stratified layers which exist around the calcified walls of the persistent cavities of the cartilage. 8thly. The stellated cellules of the osseous tissue are to be considered as the offshoots of the cartilage cells which, being liberated by the opening or disappearance of their capsules, are multiplied in the interior of the medullary spaces forming the foetal medulla, of which a part becomes cellulo-osseous, the other part remaining in the state of cellules of the medulla. Probably this fundamental layer is secreted by the stellate cells. The new bone is the seat of an active movement of composition and decomposition, destroying the old parts and producing new ones. 9thly. In the interior of a cartilage mass the osseous substance first appears in the canals of the cartilage. They become filled with an osteogenic layer supplied with stellated cells, at first soft, then hard, and finally incrustated with calcareous matter, (as in the short bones, vertebræ, tarsal bones, etc.) 10thly. In the long bones the osseous substance is first deposited at the periphery, beneath the perichondrium, while the interior is transformed into foetal medulla."—(*Brit. and For. Med.-Chir. Rev.*)

"Failure of Hypnotism. The excitement produced by the introduction of Dr. Braid's method of hypnotism into Paris, as a proceeding applicable to the operative purposes of surgery, is likely to end in the flattest evaporation, as we predicted. The successes have been less striking, and the failures more numerous, than we expected. Experiments have been made on a very large scale in nearly all the hospital establishments of Paris. It has been clearly proved that only women are affected, except in unusual instances. As regards the male sex, the question is judged. With females, the results are variable, imperfect, and practically useless to surgery. A well-arranged series of trials was carried out by Drs. DEMARQUAY and GIRAUD TEULON, in fifteen cases. The temperament of the patients, and the results, are very impartially related. It is worth while to analyze these cases; the patients were all females, the majority having (cancerous) affection of the uterus. The result was, in No. 1, catalepsy without anæsthesia; 2, no results; 3, no results; 4, hysteria, with exaggeration of the sensibility; 5, muscular relaxation, sensibility still continuing; 6, no results; 7, no results; 8, anæsthesia; 9 and 10, no results; 11, slight bewilderment—'experienced during the trial voluptuous sensations;' 12 and 13, no results; 14, fell asleep—awoke and cried out when pricked with a pin; 15, anæsthesia. So that out of fifteen females, there were two in whom anæsthesia was produced. But this is neither profound nor lasting. A noise, or the movement of the object before the eye, is sufficient to interrupt the process. Meantime, it is evident that all the forms of abnormality which may be induced by thus forcing the vision are not thoroughly known. Enough is seen to demonstrate that the proceeding can have no surgical value, and that the results attributed to 'mesmerism,' 'animal magnetism,' 'electro-biology,' and the like, are capable of imitation by these means. This was already shown by Dr. Braid's experiments; but, singularly enough, it has been customary to draw very opposite conclusions from his experience. While interest is still felt in the inquiry in Paris, it is very desirable that the physiological relations of the enforced action of the eyes on corresponding parts of the

brain should be investigated. The whole series of phenomena incidental to catalepsy, epilepsy, hysteria, and induced coma, may be found to be connected with disturbance of the circulation at the base of the encephalon, which is, for the most part, so carefully guarded against by the anatomical arrangements of the beautiful circle of arteries to which Willis has given his name. Meanwhile, the comparative danger of inducing these forms of disease, or of administering chloroform, must be carefully weighed by experimenters."—(*Lancet*.)

"*A Double-Headed Pig*.—Our friend, DR. W. P. BEALL, of Texas, writes us that he has in his office the double head of a pig which was born in his neighborhood, and which lived, was lively, and ran about for twenty-four hours. It has two ears, three eyes, two fully developed noses, two mouths, with teeth above and below in both, and with a septum dividing the gullet as far down as the stomach. Its middle eye is in the cleft of the os frontis where the upper maxillary branches off into two bones. It opened and seemed to see with all three of its eyes."—(*St. Louis Med. and Surg. Jour.*)

MISCELLANY.

UNDER the head of damages, in the index of the *Western Law Monthly* for December, 1859, with reference to decisions in cases of personal injury, it is stated that "One entitled to an action for a personal injury, may recover for pain and suffering, after action brought, as well as before; and for such as must, with reasonable certainty, arise after the trial.

"Exemplary damages are recoverable only where the defendant's act was designed to produce injury, or there has been a reckless disregard of the safety of the person or property of the plaintiff.

"Personal suffering constitutes an ingredient in the legal estimation of damages by a personal injury, which the person sustaining it is entitled to recover when caused by the wrongful act or neglect of another. In this respect, the case differs from that of an action brought to recover damages sustained, from a like cause, to the plaintiff's relative rights of person."

Among the conclusions which DR. R. KUTTNER has arrived at, from the consideration of 10,000 cases of disease which have been observed at the Children's Hospital, in Dresden, (*Med. Times and Gaz.*, Dec. 24th,) is the following: "Diseases of the nervous system, particularly brain affections, and especially within the first five years of life, are almost twice as frequent in boys as in girls."

It is said (*Ibid.*) that "a Barcelona gentleman advises incorrigible smokers to use potato leaves instead of tobacco; they will then get a solanaceous plant not virulently poisonous."

In the report of the Proc. of the Pathological Soc. of London, (*Ibid.*, Dec. 10th,) it is stated that "Mr. Henry Thompson exhibited for Mr. Davis a case of supposed epithelioma of the tongue, taken from a patient aged 79. It was said to have existed for sixteen years, and had been six years under observation. It involved the tip and right half of the tongue. The left side of the tongue, the pharynx and larynx were atrophied. There had been great pain and difficulty in swallowing. No narcotic seemed to relieve the pain, and he would not submit to an operation.

He died; and at the autopsy no malignant disease was found elsewhere. The glands were not affected. Mr. Fergusson said that in cases of cancer of the tongue the pain in swallowing was usually entirely relieved by the removal of the disease, and thus, though it might return, great relief was afforded."

DR. G. F. GIRDWOOD, after describing (*Lancet*, Dec. 24th,) two interesting cases of anomalies of the human organization of a hermaphroditic character, refers to the relative development of the two sides of the body, and observes that he feels warranted in asserting that there exists a difference between the left and right side which extends throughout the chain of animal life, (when the locomotive apparatus consists of four members;) on the right, to represent the male character; on the left, the female. Among other facts which he says he has collected illustrative of this idea, he mentions, as an example, the comparative arrest of development in the hare-lip, which is as a rule to be found on the left side. It would be very interesting, and doubtless also practically useful, to extend this investigation upon relative development to all the tissues and organs of the body; and, among others, to the teeth, to thus ascertain whether any appreciable difference exists between those of the opposite sides, either in constitution, structure, form, position, eruption, or development. The diseases of the different parts will also afford data upon this subject.

A combination of equal parts of alum, gum, and sugar, mixed with a sufficient quantity of laurel-water to form a consistent mass, and divided into pastils of four grains each, which contain from half to one grain of alum, is said by DR. ARGENTI (*Bull. Gén. de Thér. and Jour. of Mat. Med.*) to be much used in ulcerations of the mouth.

According to the last-mentioned journal, DR. CHAS. McLEAN, of Baltimore, recommends the following formula for neuralgia of the head and face:—

R --Extract of belladonna,	4 grains;
Aq. ammonia,	6 fluid ounces;
Spirit terebinth.	$\frac{1}{2}$ " "
Tincture opii,	2 " "
Oil of olive,	$\frac{1}{2}$ " "

Mix. Apply during the paroxysms.

The Ferri et Ammoniae Sulphas, or Ammonio-Ferric Alum, is an excellent styptic, which is markedly astringent without being so stimulating as some of its analogous salts. It is not, however, a true alum, as it does not contain any alumina, though similar in properties and in being a double salt like the compounds of that class. A formula for its preparation, taken from Parrish's Pharmacy, is given in the Am. Drug. Circ. for January, but as it can be readily purchased it is not necessary to reprint it here.

The Circular states that M. ST. CLAIRE DEVILLE has found considerable quantities of the metal vanadium in the clay-iron ores of the south of France, though he has not yet discovered the proper method for separating it. This metal "may be introduced in the manufacture of colors as a substitute for chromium, as it forms a number of beautiful pigments, which would find especial application in colored china-ware," and perhaps also in all other varieties of porcelain manufacture.

It is also stated (*Ibid.*) that "C. FR. VASSEROT has obtained a patent in England for covering plate-glass with a layer of platinum or palladium

to form reflectors. The glass is painted over with a mixture of ten or fifteen parts of bichloride of platinum or of palladium with one part of a saturated solution of boracic acid in oil of lavender. It is then placed in a muffle, which is heated in the furnace until the glass begins to soften. If at that point the surface should not be a perfect mirror, the same treatment is repeated. Otherwise the glass after cooling in the annealing is covered over with the solution of boracic acid in oil of lavender or alcohol, and again heated in the muffle at as high a temperature as the metal coating will bear without injury."

For removing the stains of nitrate of silver from the hands and clothing, a writer in the same journal observes: "All that is required is to touch the spot with tincture of iodine, and when dry with some caustic alkali, hypersulphite of soda, or even soap, which will be found more effectual than anything else we have tried."

The *Boston Med. and Surg. Jour.* says that "M. DEMARQUAY, of Paris, has successfully used glycerin in ulcers and fistulous tracts, along which latter it should be injected to fulfill the following indications, viz, to diminish excessive suppuration, cleanse the secreting surfaces, modify the noxious properties of the pus, prevent the stagnation of fluids, or simply to excite the pyrogenic membrane, and bring about cicatrization."

M. BROWN-SÉQUARD announces (*Med. Times and Gaz.*) that he has distinctly observed the existence of epileptiform seizures in many of the young guinea-pigs, which were produced by parents who had been rendered epileptic artificially by him.

A correspondent of the *Sci. Am.* observes that a thin varnish of india-rubber, made by dissolving it in turpentine, will dry when applied to any substance which will sufficiently absorb a portion of the adhesive matter, but not if applied to any hard or non-porous substance.

It is stated in the same journal that by a new process, patented by PROF. T. M. FELL and MR. J. N. WYKOFF, gold may be obtained more abundantly from auriferous quartz by grinding it and submitting it to the action of heat and water in connection with mercury. Heretofore from three to four dollars only have been obtained from a ton of this metalliferous quartz, but this process separates on an average fifteen dollars from the same quantity. It requires about two pounds of mercury for amalgamation with and to obtain one pound of gold. The former may then be separated from the latter by mechanical means, as by straining through chamois leather, or by sublimating with heat, and be thus reclaimed and again employed.

It is also mentioned (*Ibid.*) that a mixture of plaster of Paris and alum-water makes a very adhesive and hard cement, useful for various purposes when applied quickly, as it rapidly consolidates like the former with simple water.

In reply to a correspondent the editor of the same paper observes that "you cannot use the india-rubber backing for teeth when another person has a patent for such an application, even though you should have the india-rubber vulcanized by the patentee for the vulcanizing process. The inventor of the vulcanizing process himself has no right to such an application: it belongs to another patentee."

In answer to another inquirer it is stated, that "various mineral oils receive the name of naphtha, but the liquid which is employed to dissolve

india-rubber is the rectified naphtha, either obtained from the distillation of coal tar or refining of native naphtha, which is found in petroleum springs, such as those in Kanawha, Va., and Oil Creek, in Venango County, Pa."

The following formula (*Rep. and Jour. de Chem. Med., and Druggist*.) is said to form an excellent astringent wash for the gums, though it does not seem to afford anything superior to other compounds of tannin, and the various other tonic mixtures with glycerin and simple or aromatic water:—

R.—Tannin,	8 parts;
Alcohol of 86°	120 "
Tincture of Benzoin,	8 "
Essence of Mint,	2 "

M. Dissolve and filter. Mix a few drops of this liquid with water, and wash the gums two or three times a day.

The *N. Y. Med. Press* says, upon the authority of the *Gaz. Heb.*, that at a session of the Acad. of Sciences, Paris, on the 29th of August last, a case of congenital division of the velum pendulum palati, cured by cauterization, was reported by M BENOIT.

In the published Proc. of the College of Phy. and Surg., of Louisville, (*Semi-Monthly Med. News*, for Dec.,) DR. BENSON is reported to have said that he had used belladonna internally, as a remedy for salivation. The practice had been suggested by the dry state induced by the administration of belladonna. He now gives in ptyalism 1-20 grain of extract every two hours.

A case is mentioned in the report of the clinic of PROF. POST, (*N. Y. Med. Press*, Dec 24th,) in which a boy had "a fistulous opening into his cheek, penetrating into the maxillary sinus, or Antrum Highmorianum, as it is more commonly called. A trochar was introduced, and no considerable amount of pus evacuated. A free incision was made within the mouth, to allow an exit to the pus. He now seems to be much better; the external sinus has closed. There is a sufficient discharge into the mouth to prevent any reaccumulation. There is some diseased bone which will probably be gradually disintegrated." In a case of alveolar abscess in which a sinus had traversed the cheek and opened upon the facial surface, and for the closure of which it was not thought advisable to sacrifice the implicated tooth, the writer adopted the plan of cutting across the sinus at its base and introducing into the wound a tent, to thus open a passage within the mouth, with a view to subsequent treatment by injections, etc., to correct the primary derangement.

In a recent discussion upon anæsthetics, before the N. Y. Acad of Med., a report of which appears in the *Med. and Surg. Rep.* for Dec. 31, the special properties and relative merits of the two principal ones; ether and chloroform, were noticed more particularly. The general conclusion come to was that chloroform is by far more dangerous than ether, though the latter is not entirely devoid of danger. The experience thus brought out sustains the opinion expressed long since that ether is a stimulant primarily, and a sedative secondarily, resembling in these respects other stimulant narcotics; while on the other hand, chloroform is a direct and potent sedative. From an extensive experience with these agents upon animals, Dr. Dalton found that he was obliged to take a great deal of pains to kill them with ether, whereas death frequently follows the use of chloroform, notwithstanding the utmost care. He thinks that this

latter agent kills by causing paralysis of the heart. With regard to the anæsthetic power of the chloroform, Dr. Gardner said that he had seen a sufficient anæsthetic effect produced by the inhalation of only five drops of that liquid to allow of the painless extraction of a tooth.

In the course of a complimentary notice of the *Hygienic and Literary Magazine* (which new monthly, by the way, we have not yet had the pleasure of seeing, though formerly in regular receipt of its lively predecessor,) the editor of the *Atlanta Med. and Surg. Jour.* makes the following pertinent remarks upon some of the causes of the degeneration of the race: "We believe that the great want of the present time is the institution of means for the arrest of the rapid physical degeneracy which has become so palpably characteristic of our day, as to be perfectly manifest to the most superficial observer. The causes upon which depend this melancholy wasting away of bodily vigor in the human family, are 'legion,' prominent among which is the *insane* use of alcoholic and drugged liquors, opium and tobacco, rapidly making the American people, without exaggeration, 'a nation of drunkards,' and before many generations, if continued, will reduce them to a nation of pigmies and idiots. In addition to this may be mentioned the almost universal use of Quack and Patent Medicines, (many of which are largely made of alcohol and opium,) and last but not least, the present *school system* of the United States, which seems to be a special instrument for cursing the rising generation with early death, or, failing in this, with premature old age and wretched decrepitude, at a period when the individual should be in the highest degree capable of physical and mental effort, and the enjoyment of life."

BIBLIOGRAPHICAL.

The North American Medical Reporter. Edited by W. ELMER, M.D., and LOUIS ELSBERG, M.D. We have received the August and November numbers of this somewhat unique and very valuable publication. It should be in the hands of every dentist as well as physician, and indeed is indispensable to both the reading and writing man who wishes to keep *au courant* with the progress of events in medical science. Its specific objects and practical character are shown by the following from its prospectus: "The *North American Medical Reporter* is published quarterly, *i.e.* on the first day of February, May, August, and November, at five dollars per annum, payable in advance. Every number consists of 400 octavo pages, containing reports of all medical matters transpiring in the whole world. This object is attained by stating, in the most compact form, all the current medical facts: faithfully, in the smallest possible space, to represent—by notices, synopses, and extracts from the entire press of the world, and, occasionally, by direct communications—the condition and progress of medical science and art. The medical periodicals consulted by the editors and their collaborators, in the preparation of each number, comprise all the American (about 50,) English (28,) German (84,) Dutch (2,) Scandinavian (7,) French and Belgian (55,) Spanish (12,) Italian (11,) Greek (2,) Turkish (1,) and Russian (2;) a list of over *two hundred and fifty*, among which there are many never, others exceedingly rarely, before made available to the readers of the English language, and some entirely inaccessible in this country."

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THE
DENTAL COSMOS.
NEW SERIES.

VOL. I.

PHILADELPHIA, MARCH, 1860.

No. 8.

ORIGINAL COMMUNICATIONS.

PRACTICAL HINTS.

BY J. D. WHITE.

OWING to the fact that we were confined to our room during the latter part of December and the first part of January, with quincy, we were not able to continue our articles on the above subject, but we will now conclude them by endeavoring to describe *how* the operation of plugging the root of a tooth should be accomplished when it is ready. We observe some difference between the plugging of the root of a tooth in which we have recently destroyed the pulp and an old case. In recent cases there is frequently a fragment of the blood-vessels and nerve left in the lower third or fourth of the fang, out of the reach of our instruments, and to thrust the gold against this would be to excite inflammation of the external periosteum. We never enlarge the natural canal of the fang to follow a pulp to the apex of a root; as we have said before, we regard that which is out of the reach of our usual instruments, such as are strong enough to grapple with, as *neutral ground*, and nature will take care of it better than we can. We calculate the gold to stop short of this fragment. In old cases, where we know there is no such fragment existing, we pass the gold as near to the apex as we can. In preparing the gold for filling a fang, we cut a portion of a No. 6 leaf into a long triangle, rolling it into a kind of hard wire, beginning at the longest point; in this way the roll may be made thicker or thinner as the case may require. By using a wider or narrower portion of the gold-leaf, this can be passed down a root as far as desirable, as it will bend with facility and possess sufficient strength to carry the point down the root beyond where an instrument would reach. Now, with a fang plugger we pack the remainder of the root as firmly as we can; our object in introducing the gold in this way is to enable us to remove it again if it becomes neces-

sary, as the gold is in the form of a peg, fitted to the canal of the root. We know that some are in the habit of plugging the root of a tooth with small pellets, one after another, packed away like so many cut wads in a gun barrel; but these cannot be removed if desired. We extracted a valuable front tooth a short time since, simply because the fang filling could not be removed; the patient, being a highly nervous one, could not bear the pain attending the formation of an abscess. There are other methods of introducing gold, but as we never resort to them, it is useless to enumerate them. On account of the difficulty of passing plugging instruments into the roots of teeth, as they vary so much in their locality and character, we use them of such low temper that they can be modified or varied to suit cases, except a very limited portion of the point, say half a line in length; this extremity, before it is tempered, is cut on the end with the blade of a pocket knife by fastening it in the jaws of a vice, so that when the cut is made, by a light tap of a small hammer, it will not split the instrument too far or open the cut too wide; besides, the nich will be smooth, and will not drag the gold back when it is placed home. The knife should have a smooth, round edge; the point may be filed down afterwards as small as is required in any case; of course, a long-shanked instrument is required for the first part of the packing, and a shorter and stronger one can be used as the cavity fills up, until the ordinary pluggers are used for the final filling of the crown of the tooth; it is necessary, however, to make two fillings, one of the root and one of the crown; when the root is filled, the surface of the gold should be well burnished to make it as hard as possible, and even with the bottom of the cavity of decay, to prevent moisture from escaping from the root into and around the crown plug. We never attempt to plug the roots of molar teeth unless we can get into them with facility, except it is in old cases where the crowns are broken away. We content ourselves by filling the bulbous portions only of the pulp cavities; it is in front teeth, canines, and bicuspid that we are careful.

SENSITIVE DENTINE.

BY J. D. WHITE.

WE feel that there is nothing connected with our art which is so important to be kept before the profession as that of sensitiveness of dentine. With due deference to those who differ with us about the treatment, we must still urge that it is essential to proper and successful operations in plugging. While all seem to agree that it is good practice if it can be accomplished without risk to a tooth whose pulp is not exposed, many disapprove of it simply because they have failed to overcome the difficulty by a bungling manner of pursuing the treatment of this peculiar affection. When we hear the treatment of sensitive dentine condemned by a dentist,

we feel that he has yet a great deal to learn about his profession other than the mere mechanical execution of his work; in many cases the subject takes a wider range than the actual sensitiveness of the tooth bone. The whole nervous system and the mental constitution of the patient is involved in it. Some patients are so constituted that they can resist physical pain, and forget it as soon as an operation is over; while others cannot resist it without receiving a blow to their whole nervous and mental system which years will not wear away. They lose the mastery of themselves for all time to come, unless their whole being is altered by a proper course of palliative treatment. Every one does not possess confidence in his own power, nor will he ever acquire it by the infliction of pain; but many such nervously-constituted patients become the best subjects when properly trained in. Hence, it is as important that a dentist should study the patient, in this respect, to properly fulfill his duties, as to execute his operations well. Too much reliance on a *hard instrument* and the endurance of the patient makes a *hard operator*. Many patients have the will to bear pain, but are thrown into convulsive motion by the touch of the instrument as though it were an electric shock, and perseverance only renders them wild, flushed in the face, and unmanageable; while others become pale and sick, and often remain in a kind of swoon for a long time, although this latter condition may occur without experiencing much pain. Highly-sensitive dentine is often associated with undue impressibility both of the bodily and mental system; nor is it alone confined to what is called the delicately constituted, but many of the most robust in appearance of either sex present the most sensitive and unmanageable cases. Sensibility of dentine varies with time and the condition of the subject; it may be intense in early life and pass off in middle age, or it may not show itself until middle or after-life. We know it varies with the constitution, but the cause of which we know very little; it is sometimes permanent, at other times only temporary. We daily see evidences of the peculiar freaks of this strange condition of dentinal sensibility; we will refer to some cases which may be of use to those who have not yet confirmed their conclusions on this delicate subject.

A gentleman, aged about twenty-three, called to consult us about his teeth, in February, 1839. His teeth were all in a badly-decayed condition; the canine teeth, upper and lower, were decayed on the labial surfaces, as well as the superior front incisors; the proximal surfaces of nearly all of his teeth were decayed also, and all so very tender that he could not brush them or even wipe them with a cloth at times. We placed a very small quantity of dry arsenious acid in the cavities around their edges, and placed over it a little soft, yellow beeswax, as the white was too hard to work, as it gave pain to press it into the cavities; this was left for twenty-four hours; at the expiration of this time we cut out the decay without difficulty, and plugged the teeth and restored the mouth

to comfort, as it could be brushed, and the teeth were rendered useful. This patient had applied to a number of dentists before applying to us, but nothing could be done. Nor was it a want of courage or will on the part of the patient. He was of a healthy constitution, sanguine-nervous temperament, and appreciated the value of his teeth; but it was simply a matter of impossibility to bear the pain of cutting out the cavities. Whether it was hazardous to the life of those teeth to apply arsenious acid to them or not, is not a question; as they were, they were doomed to destruction by decay in a short time: besides, they were always painful to the touch of food, brush, or cold substances. We are now, after the lapse of twenty-one years, placing some artificial back teeth in for this patient, as the roots have nearly all come out. There are three large molars remaining in the upper jaw, together with the two front incisors and canines, all of which have been plugged; the lateral incisors wore down to the plugs, and broke off a few years ago; the canines and the front incisors are, and have been for years, the principal teeth in use, and are wearing away rapidly.

The teeth in which the arsenic was applied twenty-one years ago are not dead, and we think sufficient time has elapsed to prove that when a tooth dies, after its application, it has been injudiciously applied, or is owing to a peculiarly impressible condition of the parts to the action of that substance. If this be true, milder remedies should first be resorted to before using it, or employ it only as an alternative. It is positively true that some teeth yield more readily to treatment by arsenic than others—what this is owing to we do not pretend to decide at present. We have applied arsenic alone, as well as the paste, for from six to twelve times to sensitive teeth before they have become sufficiently insensible to operate on; after all this, and years have elapsed, and the teeth are not yet dead, while others have become dead in a few months after but one slight application.

Case second, but only one of a class that occur daily. A lady, thirty years of age, nervous temperament, had the front incisors plugged on the median proximal surfaces three times in the course of one year, but the plugs dropped out each time. She applied to us in a very nervous state. It was with much difficulty that we could apply cotton between the teeth, with pure creosote; the teeth were sensitive to the touch all over; the contact of the finger or the instrument on the enamel caused the patient to shrink with pain, but to attempt to cleanse either cavity she would scream with pain and nearly spring out of the chair. We inquired how she had them plugged at all. She remarked that it was with intense suffering, and every time they were plugged they grew still more tender. She had intended to let them go to destruction until a friend prevailed on her to consult us about them. This is a case where the patient had lost entire control of herself. After applying the creosote for five or six times, once

a day, we placed in with the creosote a small quantity of chloride of zinc—if the zinc had been applied at first it would have excited too much pain: in this case there was considerable irritation of the periosteal membranes, which helped to increase the sensibility of the cavities of decay. After the tenderness subsided, which was in about ten days, the whole inner surface of the cavities presented a dark appearance, as there was a stratum of a tough decay, like leather, over their whole surfaces. This yielding layer of decay rendered it extremely painful to press the gold into the cavities while the parts were tender, but after it was removed there was no pain at all in introducing the gold, and we used as much force as we could exert.

The lady mirthfully inquired of us whether we did not think she was a good patient. We answered that we thought she was first-rate when there was nothing to cause her pain. She replied, the other dentist said she was a bad patient, and that was the reason why he could not plug her teeth; but, she added, if she behaved badly it was his fault; it was he who made her so. Many dentists believe that a tooth should be plugged, no matter how painful it is, at a first sitting, as it wastes time to subject it to treatment; but in the case referred to, the patient informed me that the dentist was from two to three hours plugging these two cavities, at each time they were plugged.

Case third, and of which we have a number. A lady, about thirty-five years of age, nervous temperament, called to consult us about her teeth. She had suffered a great deal of pain over the left side of the head and in the upper teeth extending from the canine to the wisdom tooth, and sometimes along the lower teeth on that side. She suffered great pain on lying down, or in a warm room. On examination, we found a very small cavity on the labial surface of the left superior canine, on the neck of the tooth. We touched it with an instrument, and she suffered great pain, which lasted for ten or fifteen minutes; it extended over the left side of the head, down the back, and passed over to the right lumbar region. We thought this could not be, but we made a second attempt to cleanse the cavity, and the same symptoms were experienced. We applied arsenious acid, left it in contact for twenty-four hours; we cut out this cavity without exciting any of the symptoms above described, and there has been no return of pain since, either on lying down or remaining in a warm room. All this goes to show that there are many peculiar conditions of the teeth, and impressions of the system, which have not been the subject of study, for many pains and aches have been in ignorance referred to other causes than to their proper places—the teeth.

[Entered, according to Act of Congress, in the year 1859, by JONES & WHITE, in the Clerk's Office of the District Court of the United States for the Eastern District of Pennsylvania.]

[Translated from the French, for the DENTAL COSMOS.]

DENTAL ANOMALIES AND THEIR INFLUENCE UPON THE PRODUCTION OF DISEASES OF THE MAXILLARY BONES.

BY AM. FORGET, M.D., C.L.D., ETC.

Memoir crowned by the Academy of Sciences at its meeting of 14th March, 1859.

(CONTINUED.)

I CANNOT conclude this part of my work, which is particularly devoted to the consideration of the osseous lesions produced by the anomalies of nutrition of the teeth, without including an instance, rare, and therefore interesting, of partial necrosis of two secondary incisors in a child of three years of age.

The observation and the anatomic section belonging to it has been sent to me by Dr. G ry, Senior.

OBSERVATION 6.—Anomaly of nutrition of the secondary incisors in a child of three years. Necrosis and elimination of a considerable portion of one of the intermaxillary bones.

A child, aged three years, had shown for some weeks a considerable tumefaction of the gums of the right incisors of the upper jaw; the tumefaction was painful, especially to the touch. Called to attend the child, M. G ry prescribed lotions with an aluminous solution; these after some days reduced the inflammation and the swelling which was the consequence of it. It then became apparent that these teeth were movable, and that a purulent liquid was issuing from their alveoli. The fall of these teeth occurred spontaneously some days later, and M. G ry ascertained the existence of a large and movable deposit, which was easily extracted with dressing forceps.

I have examined with great care the osseous section sent to me by my honorable compeer, and I have assured myself that it consists of almost the whole of one of the intermaxillary bones. (Plate VI. fig. 1.) The surface of the deposit is rugose and unequal, and marked by a very large number of little vascular canals. On its lower edge are the alveoli of the two temporary incisors, and above these are two cavities, raised one above the other, in the thickness of the bone—these contain the permanent incisors, which are larger than those in an adult.

Coinciding as I do with the author of the preceding observation in his opinion upon the nature and origin of the affection which resulted in the elimination of this large deposit, I think that the premature evolution of the germs of the second dentition was the point of departure. The want

of all proportion between the dimensions of the alveolar arch, at the age of the little sufferer, and the size of these anomalously-developed teeth, shows the reason of the ulcerous inflammation that caused the fall of the milk teeth, and the more profound lesion which compromised the incisive bone itself.*

CHAPTER SECOND.

ANOMALIES OF POSITION OF THE TEETH, THEIR PATHOLOGICAL CONSEQUENCES.

IN order to complete the study of the histological connection between the dental anomalies and the diseases of the jaws, it is necessary to consider the anomalies of position of the teeth which, like those of nutrition already described, are the point of departure of a certain number of pathological facts.

These anomalies, considered in reference to their seat, can be divided into two orders. In the one, the tooth altered from its natural position is found in the continuity of the alveolar arch; in the other, on the contrary, the tooth is found at a point of the jaw more or less distant from that arch. I have represented (Plate IV. figs. 1, 2, 3, 4,) some examples of these various anomalies. In some of these (figs. 1 and 4) the teeth occupy the alveoli, while in the others (figs. 2 and 3) they are at a marked distance—especially the supplementary canine tooth, which is incased horizontally in the thickness of the roof of the nasal fossæ, in the interior of which it forms a very considerable elevation.

The *Bulletins de la Société Anatomique* (vol. ii. p. 25, obs. by M. Lacroix) contains an example of a superior incisor directed upward and backward, and received into an accidental cavity which it had hollowed out of the two maxillary bones. This cavity resembled a maxillary median sinus having from seven to eight lines of diameter. The observation does not say whether this morbid disposition was revealed on the exterior by any appreciable signs, but it is easy to comprehend that such a cavity, in developing itself, must have subsequently constituted a more important lesion and rendered a surgical operation necessary.

It is true that anomalies often remain undiscovered during the life of the persons affected by them, or manifest themselves only in objective signs too feebly pronounced to be considered as pathological facts. It more frequently occurs that they are the cause of incessant irritation, which has the effect of making the regular teeth carious, of giving place

* This observation decides, in my opinion, the question now under debate before the *Académie des Sciences*, relating to the existence of the intermaxillary bones. According to M. Rousseau, who has found a convincing opponent in Dr. Larcher, this bone does not exist; the anatomic fact which I have just recorded seems to me to prove the contrary and to establish the opinion of M. Larcher.

to the formation of fistulous abscesses, and even of causing the alveolar edge to become carious. (See Plate IV. figs. 3, 4.)*

In some cases, the only indication of the existence of these anomalies is the persistence of dental neuralgias, that are so acute as to have the most fatal results, as is proved in the observation reported by Dr. A. Desirabode in the *Journal des Connaissances Médico-Chirurgicales*, September 1st, 1851.

OBSERVATION 7.—Anomaly of position of a wisdom tooth—extremely severe dental neuralgia—death by suicide.

This observation treats of an individual named Chéron, a wheelwright, born in 1816, at Villefranche. This man was carried, in 1841, to the Hôpital de la Pitié, during the attendance of Lisfranc. He had been for some time subject to violent pain in the teeth, and had thrown himself into the street from the window of his chamber, which was situated under the false roof, (sky-light?) At his entrance to the hospital he exhibited numerous contusions, and he was in a state of profound prostration; during the following night he was attacked with lock-jaw, and died the next day.

At the post-mortem examination the inferior left wisdom tooth was found placed under the gum, which was much tumefied; it was directed from behind forward, its roots corresponding to the base of the coronoid apophysis, and the crown resting against the last large molar, upon which it exerted a strong pressure.

Can we not, in this case, agree with Lisfranc in attributing the suicide of this individual to the state of exasperation maintained for some time by the dental suffering to which he was a prey? This view seems to me to be not without foundation; and I am ready to admit that these pains have not been without influence upon the production of tetanic accidents. I will also remark that the three other wisdom teeth of this person showed no peculiarity, being regularly developed.

I have said that in their change of position, by a species of migration, the teeth sometimes remove themselves from the alveolar ridge. In addition to the fact that I have already cited in support of this assertion, I am able to add an observation by Professor Blandin. (*Des dents. Thèse de Concours*, 1846.) It is interesting in more than one respect, and proves that the teeth, thus removed from their regular position, can form tumors more or less voluminous at the surface of the jaws, which have a difficult diagnosis, and become the occasion of lamentable errors to the surgeon.

OBSERVATION 8.—Anomaly of position of two molar teeth giving rise

* The reader can consult, with advantage to himself, a treatise entitled *Les déviations de la dernière molaire et les accidents qui peuvent accompagner sa sortie*; published in 1826, in the *Revue Médicale*, by Dr. Toirac.

to a tumor of the palatine arch—supposed cancer of the maxillary bone—error of the diagnosis discovered during the operation.

A woman, forty-three years of age, entered at the Hôpital Beaujon for a malady of eighteen months standing, which was characterized by two ulcerations that occupied the nose and the right cheek; these ulcerations were fungous at the retroverted edges, and were subject to shooting pains. The patient exhibited, besides, a tumor of the shape and size of a walnut upon the left side of the palatine arch; it was limited on the outside by the dental arch, on the inside it passed the median line and extended, in the antero-posterior direction, from the neighborhood of the canine tooth almost to the velum of the palate. Struck with the carcinomatous aspect of the ulcerations of the face, Blandin, whose opinion was supported by Marjolin, formed an unfavorable diagnosis of the tumor, which he judged to be of a malignant nature. He was also decided that the treatment should aim at the same time at the removal of the palatine tumor and the cauterization of the ulcer of the face.

Consequently, a crucial incision was made in the tumor, the flaps were dissected, and the surgeon had already disposed himself to attack with gouge and mallet the tissue that he believed to be diseased, when, after sponging the wound, he perceived a *white body, slightly brilliant*, in the centre of the tumor. On touching it he found that it was movable, and, seizing it with the forceps, he extracted it. It was a molar tooth with three very short roots, but the crown was the shape and size of the first great molar. A second tooth was extracted from the same; it was not so large as the first, but, like it, multicuspid. Great was my surprise (says Blandin) and that of my assistants; and it was only then that, by questioning the patient, he learned that several of the teeth of the upper jaw had never appeared above the surface. He decided from this that the intermaxillary occlusion of the two molars, so unexpectedly discovered, had been the cause of the malady, which it had constituted exclusively. The teeth, directed obliquely inward, had pierced the internal part of the alveolar ridge, and placed themselves between the mucous membrane and the corresponding osseous plane.

The wound of the palate was then cauterized to stop the flow of blood, the ulcerations of the face treated with several repetitions of nitrate of mercury; and the patient left the hospital two months afterwards, cured.

Were the ulcerations of the face cancerous? Blandin, at the close of the observation, reaffirms it; and, according to him, there was a double malady. This view of the question is open to discussion. In effect, so rapid a cure of an ulcerous cancer would appear unusual, and not very probable.

However that may be, the fact that is important to this inquiry, and which this observation will serve to establish, is the possible existence of

tumors developed in the body of the maxillary bones, and constituted by the aggregation of several teeth transplanted in some fashion to a distance from the place of their normal development.

A like tumor occupying a point of the lower jaw distant from the alveolar ridge had been, according to Blandin, (*loc. cit.*, Thèse de Concours,) removed by Marjolin and Duval, who, not so fortunate as himself, did not discover in time the error of diagnosis into which they had fallen. These facts are sufficient to show how important it is that the surgeon should not be ignorant of these migrations or changes of place in the teeth, and that he should take them into very great consideration every time he makes a diagnosis upon a tumor thus developed in the neighborhood of the dental arches.

Accidents produced by this variety of anomalies.—When the tooth that is turned from its regular position by this variety of anomaly only constitutes exceptionally, as in the preceding case, a serious pathological accident, being situated at such a distance from the other teeth that it cannot check their regular evolution; it is not the same thing as when, preserving its right of domicile in the continuity of the dental arch, it is there developed in a vicious attitude, which necessarily changes its natural relations, as much with the contiguous teeth as with the maxillary bone itself. It can be easily foreseen that in such a case the osteite which is thus removed may be the active and permanent cause of an irritation, that modifies, in exaggerating, the vitality of the osseous tissue, and becomes there in this way a point of departure of a lesion more or less serious, according to the nature, otherwise variable, of the morbid production that constitutes it.

Thus the osteite and its numerous consequences,—caries, necrosis, abscesses, cysts, hypertrophy of the osseous tissue as well when restricted to the inorganic or calcareous element as when especially affecting the organic or fibro-cellular substance, a morbid disposition which causes the very frequent appearance of fibro-plastic tumors in the continuity of the maxillary bones—such are the various lesions that clinical observation authorizes us to ascribe to the teratological influence that I have indicated, and which the following observations will be sufficient to prove.

OBSERVATION 9.—Anomaly of position and development of a wisdom tooth; the penetration of one of its roots into the dental canal; medullary osteite of the ramus of the maxillary bone; resection and disarticulation of one of the condyles of that bone.

A man, aged twenty-six years, had been for a long time affected with very acute dental neuralgia, which was seated in the alveoli of the last molar teeth of the right side of the lower jaw, which was observed to increase in size through the whole extent of its ramus. The tumefaction soon became considerable, and, at the same time, a considerable incon-

venience occurred in the play of articulation; this was progressive and always increasing, as was the swelling that soon after extended to the whole masseterine region. This difficulty became such that the lowering of the jaw was impossible. Hard, resistant, and irreducible under pressure, this swelling was the evident result of a hyperostosis.

The invalid then decided to enter the Hôpital de la Pitié, during the service of M. Maisonneuve, who, after laying the osseous tumor bare, applied the crown of a trepan with the intention of finding the tooth which he presumed to be the cause of the malady.

The insufficiency of this operation made him decide to resect the ramus of the bone, by disarticulation of the condyle and by a cut of the saw through the alveolus of the first large molar.

The anatomic section was sent to me by my honorable colleague, and I ascertained in it all the characteristics of an osteite in various degrees of development. Sawed according to its axis, I found in the body of the ramus many cavities lined with a pyogenic membrane that was bathed with pus on its surface. Some of these cavities were completely closed by osseous tissue, while others were opened in the interior by means of the ulceration of the same membrane. One of these cavities occupied the condyle, and was exposed by an opening near the articular cartilage. (Plate VI. fig. 3.) The development of this encysted abscess could not take place without producing the rarefaction of the areolar tissue of the bone and the simultaneous rising of the compact lamina. This double arrangement had had the effect of producing the considerable increase in the size of the ramus, the vascularity of which, pathologically increased, was revealed by the presence of numerous osseous canaliculi which were riddled with holes.

The medullary osteite terminated by the suppuration and elimination of the deposit and of splinters of bone in the interior of the purulent cavities. It had effected a less rapid progress at the level of the angle of the jaw, where the hypertrophical condensation of the osseous elements existed in a considerable proportion. It was at this point that the crown of the trepan was applied without success; no doubt the inflammation had there had in the end the same issue as in the rest of the ramus, and that it was there also terminated by ulceration.

As to the cause of the malady, I do not hesitate to attribute it to the anomalous enlargement of the wisdom tooth, which was inclosed in the base of the coronoid apophysis, and extended hardly a millimetre beyond the edges of the alveolus, which it had there formed for itself. This, like the dental crown that filled it, was twice as large as it would have been in ordinary conditions, and the wisdom tooth pressed forward against the neck of the neighboring tooth (second large molar) in such a way as to take position in the dental arch, and necessarily displaced that tooth which

had hindered its ascent. Was it on account of this obstacle that the development occurred in the body of the bone?

A section of the jaw passing under the dental canal, open on its inferior wall, demonstrated to me that a communication existed between it and the alveolus of the wisdom tooth, which was united there by the extremity of one of its roots. These were otherwise far from being healthy, the summits were truncated, and the canal that traversed them exhibited an unusual dilatation. Finally, the bluish color of the ivory-like tissue indicated an alteration of structure which could not be more evident.

(To be continued.)

THE PROFESSION IN ENGLAND.

(FROM OUR LONDON CORRESPONDENT.)

THE year 1860 promises to be one of considerable importance to the profession in England. Three full years have gone by since the first successful attempt to organize dentists into a compact body was made. The attempt, although successful, cannot be said to have accomplished, by a very great deal, all that could be desired; nevertheless, the fact remains that we have entered upon the fourth year of organized progress, despite the political differences of pioneers, and despite the reprehensible lukewarmness of "*neutrals*," men who pride themselves in belonging to "neither party," and who, buttoning up their pockets against the expenses of both parties, complacently look forward to any benefits that may arise in common, from the time, trouble, and expense given to the cause by their more active brethren. Experience will prove whether these "outsiders" are acting to their own material advantage.

But I must not indulge in contemplations of this sort; my business is more to record facts than to comment upon them—therefore I proceed. The fourth year of professional organization in England, then, has commenced. January has witnessed the annual meeting of the College of Dentists, of the Odontological Society, and of the Dental Hospital. The annual meeting of the college was held on the 26th of the month, (January,) and from the reports of the several officers, it appeared that the institution was established on a firm basis. Much had been done in the previous twelve months toward developing the objects of the college, and it was evident, from the able speech of the president, Mr. George Waite, that the council were determined on a course of action at once firm in principle and honorable toward dissentients. The number of members was given as considerably on the increase, and the treasurer's report showed a favorable balance of more than £200 at the banker's, while the curator's report was only unsatisfactory in one particular, namely, that

the donations and promises of contributions had been so numerous that no further accommodation could at present be afforded in the museum.

The gentlemen whose names are annexed were unanimously elected for the current year:—

President.—G. Waite. *Vice-Presidents*.—J. Harley, J. Horne, W. Hunt, W. Imrie, Norman King, P. Matthews, J. Merryweather, J. Robinson, S. Tibbs, J. E. Rose. *Council*.—E. Bevers, D. J. Brennies, T. Harding, H. T. Kempton, W. Perkins, J. C. Smith, R. Thomson, F. Weiss, R. T. Hulme. *Treasurer*.—P. Matthews. *Hon. Secretaries*.—S. L. Rymer and A. Hockley. *Librarian and Curator*.—T. Purland.

At the meeting of the Odontological Society, Mr. Harrison was elected *President*. *Vice-Presidents*.—Wm. M. Bigg, C. Bromley, J. Tomes, J. Martin, S. Cartwright, Jr., and T. Palmer. *Council*.—J. B. Fletcher, R. Brookhouse, E. Sercombe, J. Heath, J. Underwood, H. Barrett, S. Berend, T. English, and W. Cattlin. *Treasurer*.—E. Saunders. *Hon. Secretaries*.—T. Rogers, A. Canton, and G. Ibbetson.

The meeting of Governors of the Dental Hospital took place at the institution on the 31st ult. The report was generally of a congratulatory character, more than two thousand cases having been treated in the course of last year, and the treasurer's statement showed the funds to be in a satisfactory state.

The "Metropolitan School of Dental Science" continues in active and successful operation. The necessity existing for such a school, the careful manner in which all its arrangements have been organized, the talent of the lecturers in the several departments, all combine to render it certain that instruction of the highest order will be open to the dental student; and abundant encouragement is offered to study, in the various prizes open to competition. I believe that this school (which the College of Dentists may be proud to have brought into existence) will have a very marked influence on professional progress.

Our brethren in the United States should know that the success of the school is to be attributed in a great degree to the able exertions of the Honorary Secretary, Mr. Henry T. Kempton, whose zeal in promoting its formation has only been equaled by his assiduity in superintending the workings of the established institution.

I must not omit to mention that Professor Erichsen's lectures on "the Surgery of the Mouth and Jaws," at the College of Dentists, have been brought to a close amid the general approbation of the members, and that a highly interesting course has been commenced by a talented member of the college, Mr. R. T. Hulme—subject: "The Structure and Development of the Teeth." Mr. Hulme is a dentist of whom, unless I am much mistaken, the profession will have reason to be proud.

In the literary way, there is but little to communicate. Dr. B. W. Richardson's inaugural lecture at the Metropolitan School has been published

by request. It is prefaced by a graceful dedication to a distinguished member of the profession in your own country, Dr. Chapin A. Harris.

I must recommend to your readers a highly interesting little work on Galvanism, by Mr. Harry Lobb, published by Baillière in London and New York. The clever author, in a brochure of 150 pages, has brought together a wonderful amount of information on the curative treatment of paralysis and neuralgia with the aid of galvanism. The subject of electricity in dental operations Mr. Lobb is practically familiar with, and he is still of opinion that electricity may be made of essential service to the dentist in his operations.

In the Court of Queen's Bench, the other day, it was decided that the use of the title Surgeon-Dentist implied no false pretense on the part of the person assuming it, even though he may not possess the diploma of the College of Surgeons, thus confirming the views advanced on the subject by the *Dental Review*.

I conclude this hasty summary of professional events by reiterating, that the close of the present year will show that in 1860 events of the utmost importance have been transacted. The profession will have learned that a certificate from the College of Surgeons may be a satisfaction to the possessor, but that the diploma of the College of Dentists alone will give *status*.

The Examining Board at each institution is composed of dentists and medical men, but in the one case the regulations as to the issue of certificates are *wholly and unreservedly* in the hands of SURGEONS, while the management of examinations and the issue of diplomas in the other is *as wholly and unreservedly* in the hands of DENTISTS. The gift of prophecy is scarcely needed to foresee which policy is destined to consolidate the profession, if indeed ours is acknowledged to be a profession *sui generis*.

Some there are here who say the College of Dentists boasts of *independence*; where is the independence if it calls to its aid the services of medical men? The answer is clear. If the Council of the College (being composed entirely of practicing dentists) see fit to place on their Board of Examiners, in addition to dentists, some distinguished physicians and surgeons who have given particular attention to affections having their origin in the teeth, (it being understood that the Examining Board is under the complete control of the Council,) then the independence is not real. But the absurdity of this view of the case is as glaring as the attempt to establish it has been impotent.

It is my endeavor to give such items of intelligence as I think may prove interesting to your readers; any further information that may be asked, from time to time in your pages, by correspondents, I shall, with great pleasure, try to afford.

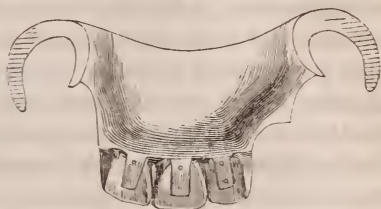
LONDON, February 3, 1860.

A REMARKABLE CASE OF SWALLOWING A SET OF ARTIFICIAL TEETH.

BY M. WHILLDIN FOSTER.

A GENTLEMAN of this city, W. K., thirty-five years of age, sanguine temperament, swallowed his artificial teeth at midnight on Wednesday. Physicians were called in, who fished for them, also tried the usual remedies, but all to no purpose; it was then concluded to let nature take her course, (not doubting in the least that *her* course would be *death* to him,) when, to the astonishment of all, and his most unbounded delight, after a very painful and laborious stool, he found himself again in the possession of them. This did not take place until the following Monday, making the *round trip* in five days.

Thinking a cut would give a better idea of what the digestive apparatus of some are capable of performing than a written description, I herewith send the exact size of plate and teeth, as taken from the original by myself. They were on gold plate, quite heavy, made eleven years ago. He remarked to me that he has not slept with them in his mouth since the catastrophe.



WILMINGTON, DEL., *January 13, 1860.*

PROCEEDINGS OF DENTAL SOCIETIES.

PENNSYLVANIA ASSOCIATION OF DENTAL SURGEONS.

REPORTED BY GEO. T. BARKER, D.D.S.

A MONTHLY meeting of the Association was held on the evening of January 17th, 1860, at eight o'clock.

President, Dr. Dillingham, in the Chair. Present, Drs. Suesserott, Hayhurst, Van Osten, McQuillen, Garretson, Buckingham, Barstow, Peirce, Fitch, Harris, McCurdy, Kingsbury, Hopkins, and Barker.

Dr. J. Hayhurst having been appointed to read an essay at this meeting, offered one upon

"DIPHTHERITIC PHARYNGITIS,"

which was read. On motion, the paper was received and the thanks of the Association tendered to Dr. Hayhurst.

The regular subject of discussion for the evening was then taken up, being

"DENTAL INSTRUMENTS, AND THEIR ADAPTATION FOR FILLING TEETH."

Dr. James E. Garetson having proposed the subject, opened the discussion.

He remarked that the consideration of instruments necessitated a consideration of the operations to which they were adapted. Had brought with him instruments which he used for filling two classes of cavities—approximal cavities of incisors, and bicuspid. Would pass them to the members and explain his manner of using them; supposed that different members had brought different instruments, and designed exhibiting them and explaining the manner of employing them, as he designed doing.

Remarked that the first object having direct bearing on the filling of an approximal cavity in an incisor tooth, was the securing of space wherein to work. Seldom wedged teeth apart; secured space in the following manner: A fine file was first passed between the teeth up to some point near the gum, which was left as a shoulder—this would prevent the teeth from coming together; the tooth was then cut, either with a safe-edge file, or with the bent chisel, until the cavity was made to look almost directly down the throat, consequently concealed entirely from front view. This palatine face to a cavity is secured at much less expense of tooth substance than might be supposed by one not familiar with the operation; and is secured without any interference with the anterior surface of the tooth. A cavity thus made cannot be detected from a front view.

He remarked that the chisel exhibited would be found admirably adapted for thus cutting away the tooth.

The space secured, and the cavity prepared, he placed the head of the patient in a position, thrown far back, that would enable him, by sitting down, to work almost as directly upon the cavity as if it were on the grinding face of a molar; indeed, the cavity was quite as plain as such a molar cavity, and could be as easily filled.

He would now exhibit three instruments, those used by him every day in such operations: first, a delicate serrated plugger; second, a dull and very strong hoe; third, a simple lathe-pointed instrument. With these three instruments he proceeded as follows: First, he made a plate of gold, as used by the late Dr. Townsend; second, he made a cylinder; third, he folded loosely a ribbon of gold, cutting it into small pieces. The plate was now taken with the forceps and carried to the roof of the cavity; the forceps laid down, the lathe-shaped instrument was taken in the left hand and the plate held in place in the cavity, then with the strong hoe it was perfectly consolidated; next, the cylinder was placed in the cavity, and in the same manner forced into that part which is toward the cutting edge. Now, we have a small cavity, the roof and floor of which is solid gold—would be understood as speaking comparatively, when he said solid gold—what could be easier, than to take up the serrated plugger, and with it work, piece by piece, in the adhesive manner, the balance of the gold? Such a plug, he remarked, would be found to have no weak points; the operation being too simple to admit of failure.

Dr. Garretson called attention to what he deemed not the least important consideration of a cavity so prepared—it made the plug, as every member must see, a self-cleansing, and consequently a self-preserving one, while for the same reason the exposed dentine was protected from the actions of injurious agents, as nothing could remain in contact with it.

He thought he felt justified in saying, that a very poor plug would be found a better protection in a cavity so prepared than a first-class plug in the same cavity, had the tooth been wedged apart, plugged, and then been permitted to come in contact with its neighbor. Did not know whether or no this method of plugging incisor teeth was original with himself, but it was his mode, and the instruments exhibited would be seen to be adapted only to cavities so prepared. Desired to remark, before leaving the consideration of incisor teeth, that there was one class of incisor teeth that could not be so treated, such, for instance, as those where there is a considerable space near the gum, touching only at and a short space below the cutting edge; he treated such teeth as circumstances seemed to direct, his practice becoming here very eclectic.

Would consume only a few minutes in alluding to bicuspid plugs; uses the same instruments, with the exception, sometimes, of a larger serrated plugger; is opposed to Dr. McQuillen's mode of getting at such cavities, as propounded in a communication in the last number of the *DENTAL COSMOS* by Dr. Woodnut.

He remarked, that he could not understand how a cavity so prepared could be preserved by its plug. There seemed to him to be a kind of hole that could not be kept cleansed. He advocated the V cut, the cut being greatest on the inside of the tooth, and the cavity being plugged from the inside. Would ask to be pardoned, however, if he misunderstood the description as given by Dr. Woodnut. Described his mode of making the V cut, and exhibited an instrument the same as used for incisors; it would be seen that thus he interfered only sufficiently with the anterior surface of the tooth to give him the top, as it were, of an inclined plane, or such a surface as would make his plug a self-cleansing one.

Dr. Harris was opposed to the practice adopted by Dr. Garretson, in filing teeth so that a shoulder would be left, and had seen numerous cases where these shoulders were the first to decay; they were weak points, that the secretions would first attack. He also thought that the exposed dentine around a filling would rapidly decompose, and preferred to separate the teeth in those cavities on the approximal surfaces of incisors, leaving the enamel perfect upon the tooth. He thought there could be no particular shapes adopted for instruments, and some of the most perfect fillings he had ever seen were put in with a few simple instruments. He

thought that habit could make one perfect in the use of almost any instrument.

Dr. Fitch said every dentist has his favorite instrument for filling teeth. In the hand of an operator *use* has much to do with highly successful results. Sound, practical judgment, with an appreciative regard for the useful and ornamental, should guide in their selection, never sacrificing the former to the latter—not, however, by any means ignoring entirely the latter. Adaptation in quality, size, and shape, should be sought after. There are evidently, with operators, great differences in natural gifts and endowments. While some have a quick, comprehensive, penetrating mind, others with even less, or at least no more of vigor and strength of intellect, possess more of the mechanical or operative skill, and each leaves upon every operation the distinctive impress of his respective qualities.

Perhaps, with the most skillful, their real distinguishing characteristics are attributable to the blending of high intellectual attainments with superior mechanical powers; therefore, it is through the combined influence of the highest grade of natural and acquired ability that the dental profession is to triumph, commanding respect even from its enemies, and challenging investigation.

The preservation of the teeth is a desideratum aimed at by all dentists. The consideration of a few facts, fundamental in character, connected with this subject, are quite important—access to the cavity, its preparation, and finally, the filling of the tooth. In reaching approximal cavities, sufficient room or space should always be attained before an attempt is made to plug the tooth. This may be done either by forcing the teeth apart by some elastic substance, or by the use of the file. In adopting the former method, the force should be gentle and gradual, the age and temperament of the patient governing its use, lest otitis or periostitis supervene.

In using the file, perhaps no rule could be laid down. Circumstances attending each case must determine the extent of its use. As little as possible of healthy tooth substance should be filed away for this purpose. Regard should also be had to the beauty of the denture. He would leave no abrupt shoulder near the necks of the teeth, rendering them liable to future decomposition. He would not leave the edges of the walls rough, or too thick, but this last condition could not always be avoided.

In reference to the preparation of cavities, he would insist that all the diseased dentine should be removed. As well known as is this truth, and strenuously urged as it is by dental writers, perhaps at no point are operators so liable to fail as at this. The opposing walls he would have nearly parallel, with the size of the cavity slightly increasing toward the base. He would leave no abrupt, shelving walls hanging over the cavity. As a general rule, dentinal surfaces left exposed from the use of the file must

be cut out, unless possessing the highest qualities of development, and then they should be pumiced and highly burnished.

Dr. Fitch further remarked, that in plugging a tooth the first gold introduced should be made stationary or fixed. This he held as necessary to making a No. 1 filling. In the next place, those points most difficult to reach, especially in approximal cavities, should be protected by the introduction of cylinders securing them at the outset against a possibility of failure, and then finish by the use of the coil, cylinder, or, indeed, any form of gold that could best be used. He depended as much upon the adhesiveness of gold as upon the opposing wall; believed all gold more or less adhesive; thought operators ignored this fact too much; he used small instruments for filling—those adapted to the size of the cavity, with points small and serrated. Was deeply impressed with the truth that teeth, as a general thing, were not filled as they should be. This remark he made with no invidious spirit, but merely to call attention to the fact. He thought the best position for filling teeth was standing, and not sitting. This latter position might be adopted where operators were afflicted with weaknesses. Maintained most strenuously that the plug should be finished as highly as gold was susceptible of being burnished, the durability of the filling depending very much upon this latter condition, other things being equal.

Dr. McQuillen was not aware that in the instruments he employed for filling teeth he had anything particularly new or remarkable. Had been in the habit of using small, serrated-pointed instruments from the beginning of his practice, as he found them in the hands of those with whom he came in contact at that period; was gratified to find that within the past few years they have been universally adopted. Alluding to the propriety of avoiding an unnecessary, and to the timid, an *unfeeling* display of instruments, he suggested that a napkin thrown over those lying upon the instrument-case or table, would prevent the unpleasant shock likely to be communicated to the minds of such patients on entering the operating room. He also referred to the fact that too much care could not be exercised in keeping instruments clean and bright, and that nothing was more calculated to disgust even the least sensitive patients than the employment of rusty or bloody instruments in their mouths.

With regard to cavities in the approximal surfaces of molars and bicuspid, he knew of no locality *more difficult* to operate upon, or one where practitioners fail more frequently, than in filling cavities in the posterior approximal surface of such teeth. Directing attention to the course laid down in the text-books, and which has been so long pursued by the mass of the profession, of making a very large V-shaped space so as to obtain sufficient room to operate in, he referred to the immense amount of valuable masticating surface that is irreparably removed by such a practice; in some instances, where the anterior and posterior surfaces of a molar have

been filed, little more masticating surface being left than would be presented by an ordinary sized bicuspid. Notwithstanding this sacrifice of valuable tooth substance, as the cavity to be filled (the posterior approximal surface of a left lower molar, for instance,) has an overhanging roof of enamel and dentine, it requires a considerable amount of skill in manipulation to make a perfect operation—the attempt being much more frequently a *failure* than a *success*. To *obviate* the necessity of sacrificing so much of the grinding surface, and at the same time to *simplify the operation* as much as possible, he was in the habit of making only a *narrow V-shaped* space between the teeth, and then cutting away the roof overhanging the cavity, thus obtaining a clear opening to the bottom of the cavity. Chisels are of course employed in the performance of this work. Although he was not, to the best of his knowledge, indebted to any one for this idea, he nevertheless desired it to be distinctly understood, that he laid no claims to being regarded as the originator of a new mode of practice, as he was well aware that other practitioners are pursuing the same course. Satisfied of its *utility*, his only anxiety was to have it generally *tested*. After excavating all the decay in the cavity, it is filled by means of pellets, commencing at the bottom and gradually working upward, consolidating the gold step by step, until at last, when the filling is completed, it presents two surfaces—posterior and masticating—the latter holding to the former the relation of a concavo-inclined plane. The instruments employed were serrated pluggers bent at different angles with the shaft. If, in addition to the decay in the posterior surface of the first molar, the anterior surface of the second molar also should be affected, he would prepare both cavities at the same time, but make it a point to fill the cavity in the second molar first. It could be readily apprehended by all present, that if the cavity in the anterior surface of the second molar was small and near the neck of the tooth, or if being of some size, there was not an absolute necessity for cutting away the overhanging roof, (as a fair view and freedom of access in manipulation could be obtained without it,) there would be a decided advantage in having the open space afforded by the cavity in the anterior molar to work in.

Dr. Kingsbury remarked, that in many points his experience coincided with that of Dr. Fitch. He could not agree with him, however, on all points. For example, he did not consider it *essential* in filling the front teeth, in all cases, to cut away the dentine so that no part of it would be exposed after the tooth was filled. He believed that if the cavity of decay was well filled, the plug made flush with the surface of the dentine, and the latter well polished and afterwards kept properly cleansed by the patient, under such conditions the exposed dentine would remain unimpaired for many years.

Quite recently a case came under his notice very much in point as an

illustration. A gentleman whose teeth he filled sixteen years ago, called on him within a few weeks to have his teeth examined, and such operations performed as might be required.

Strange as it may seem, according to his statement, no dentist had examined his teeth for the past sixteen years; yet the superior incisors and cuspidati, which were badly decayed at the time upon their approximal surfaces, and which he filed freely, and filled with gold, showed no signs of decay at the time of his recent examination. That was by no means an isolated case, but only one of many, proving that exposed dentine may preserve its integrity for a long series of years.

He greatly preferred instruments with sharp, serrated points, to round, blunt points, for filling teeth. He aimed so to impact and consolidate the successive portions of gold-foil as to render the plug, when finished, a solid mass. This can only be done by serrated and well-tempered steel points. With the *best instruments*, and the *most careful manipulations*, he did not expect to make *perfectly solid* fillings, or even as solid as molten gold; nor did he consider it essential for the preservation of the teeth that fillings should be made thus solid; if so, very few teeth would be preserved.

According to Sir Isaac Newton's calculations, if all the gold in the world, together with the world itself, were compressed into a *perfectly solid, unporous* mass, it would only be about the dimension of a cubic inch. He would by no means have any one infer from these last remarks that he did not strongly advocate *solid work* in the filling of teeth. No one approved of thoroughly-condensed and highly-finished plugs more than himself; and, in his opinion, it was a most *uncommon fault* among dentists, making their fillings *too solid*.

Dr. Barker remarked that the adaptation of dental instruments was a subject that was deserving of more attention than had been accorded by the dental profession. He believed many employed instruments and points because they were used to them, and not because they were well adapted to their wants; and while it was true that many practitioners did accomplish excellent results, yet thought much of the inferior work was due to this cause, too many being unwilling to try new points or new shapes, and if they did so, one failure was a sufficient cause for them to be discarded. He thought every dentist should be acquainted with the working of steel and the practical manufacture of instruments, and this was particularly useful to the young practitioner, as upon every side that he seeks advice will he meet with conflicting views and opinions, each having his favorite instruments, which, in other hands, would be entirely valueless; nor can he rely upon the judgment of manufacturers, for they cannot tell whether or no they are well adapted for use. For obtaining sharp points upon instruments he had been indebted to a method proposed by Dr. Jack, in the April number of the *News-Letter*, 1857. This improvement

consisted in simply drawing the point backward and forward upon a Stub's file, thus giving to the instrument teeth as sharp as those of the file. The number of points in each plugger may vary from two up to thirty, all of which, under certain circumstances and in certain cavities, may be required; they may then be made smooth with Arkansas stone, tempered and finished for use. These points are well adapted for the use of adhesive gold, though he had found them also as useful with non-adhesive foil.

The value of an instrument could only be determined by trial; it should be so adapted that a direct force could be brought to bear upon every part of the cavity; it should be of what is termed a "spring temper," the temper which we see in fine saws and watch-springs; if tempered above or below that point it will break or bend; and lastly, the point should be of such a character that it would condense each particle of gold without cutting and destroying the fibrous character of the gold: these qualities were indispensable for good instruments.

He considered the chisel invaluable, as it dispensed with the use of the file to a great extent, which is so objectionable to our patients. His practice in treating those cavities of decay upon the approximal surface of incisor teeth was to first separate slightly with india-rubber, then cut away the lateral surface, filling the tooth from that surface; and thought if dentine was highly polished and burnished it would effectually resist the action of decomposing agents.

Dr. Buckingham objected to instruments being bent at right angles; they were not so strong as those that were curved. If curved and properly tempered, they would spring along the whole distance of the curve; but if bent at right angles, the spring is lost at the angle. Take, for illustration, an instrument bent twice at right angles—once at a right angle to the shaft of the instrument, and again to bring the point parallel with the shaft; pressing on the point of this instrument in the direction of the shaft, the whole of the spring would be in the small space between the angles.

An instrument should also be tapered properly when it is used, so that the force is not in the direct line of the shaft, but should be made and used on the principle of a lever; the thumb or finger is made the fulcrum, some part of the hand resists the force at one end, and the point resists the pressure at the other. Now as this force diminishes from the fulcrum to the point, the instrument should be so tapered that it will spring along the most of that distance; but if it should be weaker in some places than in others, the bending will take place at the weakest point, and, as the pressure causes the particles of steel to be torn apart on the outside of the curve and compressed on the inside, it is evident that when this expansion extends over a long space the particles will not be drawn as far apart as when it is confined to a very short one.

Instruments should be tempered also to a spring temper, except at the very point, which may be made hard when required. If made harder than a spring temper they are more liable to break, or if softer, they will bend.

He thought there was a tendency sometimes to use instruments with the points too small. He knew instruments had been used with perfectly sharp points, but with those the gold had to be packed with the sides of the instrument, and not with the point; when the points were very small they would cut through the gold, unless great care was taken, and when the gold had been cut up it was almost impossible to pack it. The position and size of the cavity would determine the size and shape of the instrument to be used. But he thought the nearer straight the instrument could be to be used, the better it would be adapted to the case.

Dr. Suesserott thought it was better to separate the incisor teeth by means of pressure, when this can be made use of. Although he has confidence in the efforts of nature in closing the tubuli of the dentine, and believes that dentine, when well burnished, will in a great measure resist the action of chemical solvents, he could not agree with the practice of some, who file away the lateral and approximal surfaces in order to convert cavities situated in these parts into lingual cavities. He urged, as a great objection to this mode of practice, that the tongue is constantly entering these spaces when the patient is talking, giving the voice an unnatural tone. He could not but believe that the enamel would afford a much better protection to the tooth than any surface that the dentist could give it. He alleged, that by the use of proper instruments approximal cavities could be filled without destroying a very great portion of the tooth, and that when it was necessary to use the file or the chisel, we should endeavor to preserve the natural shape of the tooth as nearly as possible; or if much of these organs had been removed by disease, it should be replaced by a properly-inserted gold filling. He used what is termed non-adhesive gold, and with an instrument resembling somewhat in shape a cork-screw, and found no difficulty in filling approximal cavities in the incisors without having to sacrifice much of the tooth. He has great confidence in wedges of wood and india-rubber if properly used.

Dr. Garretson remarked, that there were certain cavities for which we needed better-adapted instruments; for instance, cavities in the exact centre of an approximal surface too small to warrant the use of the chisel, where it would not do to cut away too much between the teeth with a file, and where circumstances seemed to contra-indicate the employment of too much pressure for purposes of separation. He alluded to a cavity in such a position having an orifice not larger than a very small pin-head, yet running in almost to the pulp cavity; space between the teeth not greater than would permit the passage of a very thin knife-blade; would not speak of his own instruments or his own manner of treating such cavities,

but would ask Drs. McQuillen and Harris how they would fill such cavities, and what kind of instruments they would use.

He remarked, that he did not desire to be answered that small cavities running so deep could with justice, and should, be made much larger, as the tooth-bone would be found diseased all about them. Such was very often not the case; the very slightest enlargement of the cavity would clear away every particle of dead or diseased matter. If any member had a different method of filling such cavities, a mode more easy and more philosophical than his own, he would indeed be pleased to receive the information.

Dr. Harris would fill the cavity described by Dr. Garretson with a cylinder of gold that could be carried to the bottom of the cavity, allowing it also to extend beyond the margin; he could add cylinder after cylinder until the cavity was perfectly filled; he had met with excellent success with cylinders, using sharp-pointed pluggers to condense each piece.

Dr. McQuillen, in treating cavities in the approximal surfaces of incisors, endeavors to obtain as much room as possible by the use of india-rubber wedges, and then with the chisel or file increases the space, cutting away from the palatine surfaces of the teeth; after excavating the decay, he introduces the foil from below, pellet after pellet, until the filling is completed, by means of very small, serrated pluggers, bent at right angles with the shaft, and then curved so as to form right and left instruments, endeavoring all the time, of course, to bring the foil in direct contact with the superficies of the cavity. In the case of very small cavities the operator should cut away even sound dentine, so as to enlarge them sufficiently to operate advantageously.

Dr. Kingsbury remarked, that in filling approximal cavities in the central and lateral incisors he usually filled from the lingual surface. He used instruments bent nearly at right angles, and curved spirally. It is important that the working points of the instruments should be of such size and form that every part of the cavity of decay can be easily reached with them; otherwise some portion of the filling will be left unconsolidated, and consequently very defective.

In filling the small, deep cavity in the lateral incisor referred to by Dr. Garretson, instead of using gold in the cylinder form, he would introduce small portions of foil, carrying the first to the extreme part of the cavity. Having thoroughly condensed them, he would add other portions, until the plug was complete. It would be absurd to suppose that a practical dentist, with thorough experience, would attempt to fill such a cavity without in the first place obtaining sufficient space, either by filing or forcing the teeth apart, to admit the free access of suitable instruments for a thorough operation.

On motion, adjourned.

INDIANA STATE DENTAL ASSOCIATION.

THE Indiana State Dental Association met, pursuant to adjournment, at Indianapolis, January 3, 1860, in the room of the State Board of Agriculture, in the Capitol. The President, Dr. Johnston, took the chair. Dr. A. M. Moore was appointed Secretary *pro tem*.

Members present:—Drs. T. M. Nichols and P. G. C. Hunt, Indianapolis; John Hood, G. Lupton, H. Satterwaith, L. W. French, and J. B. Harland, Greensburg; C. C. Dills, Peru; S. B. Smith, Terre Haute; G. H. Perine, N. Y.; J. T. Toland, Cincinnati; J. P. Ulrey, Rising Sun.

Dr. Johnston presented a report of the course pursued in the election of delegates to attend the National Convention held at Niagara last August, which was received and entered upon the minutes.

The Committee on Business reported the following order, which was adopted:—

1. Should Pivot Teeth ever be Inserted? and if so, under what circumstances and in what manner?
2. Inflamed Dentine.
3. Treatment of Dental Periostitis and Alveolar Abscess.
4. Mechanical Dentistry, including the various modes of constructing Artificial Dentures.
5. Filling Teeth.
6. Miscellaneous Subjects.

The Committee of Examination reported the names of Drs. J. T. Turner, of New London; E. W. Morris, of Waynesburg; J. Knapp, of Fort Wayne; M. N. Manlove and H. T. Manlove, of Logansport; W. C. Stanley, of Dublin; S. W. Goode, of Madison; — Pifer, of Lafayette, and G. A. Wells, of Indianapolis, as candidates for membership. They were duly elected by ballot.

On motion, the Association proceeded to the election of officers for the ensuing year, which resulted as follows:—

President, J. Knapp; *1st Vice-President*, P. G. C. Hunt; *2d Vice-President*, J. Hood; *3d Vice-President*, J. P. Ulrey. *Treasurer*, J. G. Nichols. *Recording and Corresponding Secretary*, S. B. Smith. *Committee of Examination*, Drs. P. G. C. Hunt, S. B. Smith, J. P. Ulrey, M. N. Manlove, and L. W. French. *Committee on Order of Business*, Drs. A. M. Moore, G. Lupton, J. F. Johnston.

Delegates to the NATIONAL DENTAL CONVENTION, to assemble in WASHINGTON, D. C., on the last TUESDAY (31st) of JULY, 1860: Drs. Manlove, of Logansport; G. A. Wells, P. G. C. Hunt, John F. Johnston, Indianapolis; A. M. Moore, Lafayette; and J. Knapp, Fort Wayne.

Drs. S. B. Smith, of Terre Haute, and J. P. Ulrey, of Rising Sun, were elected as contingent delegates.

The Association remained in session three days, meeting morning, afternoon, and evening, during which time the subjects agreed upon were discussed *seriatim*.

Dr. Lupton exhibited casts of some interesting cases of irregularity, and explained his method of treating the same.

Dr. Perine also exhibited several remarkable specimens of dental exostosis and other morbid conditions.

The following scale of prices was presented, and, on motion of Dr. Johnston, recommended to the members for general adoption:—

	FROM—	TO—
Filling smallest cavity with gold.....	\$2 00	—
“ large, including fang, with gold	6 00	\$25 00
“ with tin.....	1 00	2 00
Removing superficial decay	1 00	3 00
“ tartar.....	1 00	5 00
Destroying nerve and filling fang.....	3 00	5 00
Destroying nerve.....	50	1 00
Extracting.....	50	1 00
Inserting pivot tooth.....	3 00	12 00
Resetting.....	50	1 00
Riveting tooth on plate.....	1 00	1 50
Soldering on tooth or clasp	2 00	5 00
Full set, on gold, plain, without rim.....	100 00	125 00
“ “ gum, with rim.....	125 00	200 00
“ silver	60 00	70 00
“ platina.....	125 00	200 00
“ vulcanite.....	100 00	150 00
“ temporary, on silver, not less than.....	50 00	—
Single tooth, on gold.....	8 00	12 00
Each additional.....	5 00	6 00
Regulating teeth.....	10 00	100 00
Professional visit.....	1 00	3 00

By request Dr. Moore read an essay upon the duties of members of the Association, a copy of which was requested for publication.

The Secretary was instructed to take the steps necessary to the incorporation of the Association.

On motion, adjourned, to meet in Indianapolis, at two o'clock, on the first Tuesday of January, 1861.

The above is a synopsis of the Secretary's report communicated to the *Dental Register*.

EDITORIAL.

TO CORRESPONDENTS.

IN reply to “J. D.,” who seems to doubt the possibility of a tooth passing into the air-passages and remaining there for some time, we refer him to that standard work *A Practical Treatise on Foreign Bodies in the Air-Passages*, by S. D. GROSS, M.D., in which he will find a record of more wonderful instances of this kind than that reported in the January number of this Journal.

We have received a communication from N. B. Slayton, in reply to P. H. Cardwell's query, in our last, in which he says that "all amalgams made with gold or silver, or both combined, and mercury, used for the purpose of rimming plates, filling in around and supporting teeth on a plate, interferes directly with my patent." We have no doubt that all such combinations thus employed "*interfere*" with his patent, but whether they *infringe* thereupon, we leave those more immediately interested to determine.

OBITUARY.

DIED, on the 24th December, 1859, at the residence of his relative, Dr. W. T. Thompson, in the town of Newberry, S. C., DR. WILLIAM H. ALLEN. The disease to which he fell a victim was pulmonary consumption. The subject of this notice was a generous and confiding friend, an affectionate and dutiful son, faithful and kind brother, and a most devoted husband and father, a worthy and respectable citizen, and a skillful dentist.

Dr. Allen graduated from the Pennsylvania College of Dental Surgery, in the spring of 1857, and was regarded by the Faculty as a promising and valuable addition to the profession. Entering upon practice, he pursued it with the most flattering prospects up to the time of his physical disability.

DIED, at Ogdensburg, N. Y., January 8, 1860, of typhoid fever, DR. DANIEL F. WAID, in his 36th year.

The deceased was born in the village of Gouverneur, N. Y., January 23, 1824, where he resided till of age. His father, a farmer in moderate circumstances, afforded him the privileges of the seminary in his native village, where he completed his academic course, occasionally teaching a country school in the winter, to help out the expense. His preliminary studies accomplished, he went to Ogdensburg in 1848, and entered the office of Dr. John Austin, to study the profession of dentistry. So faithful was his study, so approved his knowledge of the profession, that, at the close of his preparation, he became a partner with his former tutor; but, about five years since, retired from the firm and opened an office on his own account, and continued his practice till death summoned him away.

In his vocation he was eminently skillful, and his success was commensurate with his skill. A thorough knowledge of his profession, and of the most approved modes of operation, drew to his chair a large number of patients, and placed him in the full front rank.

His remains were attended to their final resting-place by the Masonic fraternity and a large concourse of friends, escorted by a band of music.

The following extract from an Ogdensburg paper will show the high esteem in which he was held by those who knew him best :—

“Such is a plain, succinct narrative of the life of Dr. Waid—the kind of narrative that becomes the man. He was, nevertheless, a representative man of his class—a class, whose modest but positive merits uniformly and dutifully pursued, stamp the good citizen, and make society, the State, thrive most. The merit he possessed spoke its own praises, and is testified to by the public appreciation. His reputation was based upon his everyday life, and this is the true test of character. The community cherishes the memory of Dr. Waid as something that belongs to it, because he contributed an essential part of its good fame.

“To lose a man like him from the prime and vigor of life is an immitigable affliction. But in the short period he was permitted to live he accumulated all the manly honors about him, and illustrated how true it is that

‘He lives most

Who thinks most, feels the noblest, and acts the best.’!”

* * *

REVIEW OF DENTAL LITERATURE AND ART.

BY J. H. M'QUILLEN, D.D.S.

TRANSUDATION OF THE LIQUOR SANGUINIS. (*Concluded from p. 368.*)
—AT the present period, it is *generally* conceded by the profession, that even after the extirpation of the pulp, as long as the periodontal membrane retains a normal condition, the nutrition of the fangs is maintained by the blood circulating in the capillary vessels of that tissue. Though it may be regarded as a matter of question by some, whether the *liquor sanguinis* nourishes the *dentine* as well as the *cementum*; from the fact that nutrition is invariably *extra vascular*, and that the fluid which nourished the dentine, prior to the removal of the pulp, was obtained by imbibing it from the vessels of the pulp; and lastly on account of the anastomoses between the dentinal tubuli and the lacunæ and canaliculi, it is fair to presume, *a fortiori*, that such is the case.

Those who look upon absorption as a *purely vital* operation, and regard dentine, when deprived of the pulp, as completely devitalized, may assert that a fluid cannot penetrate a dead tissue. But this is not true, as the phenomenon of absorption is not a *vital*, but a *physical act*; as *imbibition* takes place in *dead* tissues, though more slowly than in the same parts when living; and this difference of rate is readily accounted for by the active circulation in the latter, and the stagnant condition of the fluids of the former.

In the act of absorption, fluids pass with equal facility from without to within, and within to without, or, in other words, either imbibition or transudation may take place. This property of permeability by fluids, possessed by all tissues, *dead* as well as *living*, depends upon their *invisible porosity*.

In support of the position that this is a purely *physical* property of tissues, *on the table where this article is being penned* four experiments—first suggested by Dutrochet—are demonstrating that point. They are as follows :

No. 1. A piece of moist bladder was tied over a tumbler completely filled with pure water, so that it came in contact with the surface of the water; some salt, scattered over the outer surface of the bladder, was soon dissolved by the water that passed from the tumbler through the pores of the tissue; a counter-current being established, the solution above passed through the tissue and mixed with the water below, and that which in the beginning was perfectly pure water, has now a decidedly saline taste.

No. 2. The intestine of a chicken containing a certain quantity of milk was immersed in another tumbler of pure water; and although but a few hours have passed since this was done, the water is now quite milky in its appearance, and the intestine, which was but partly filled with milk, has materially increased its contents, proving that milk has *transuded* through the tissue, and water been imbibed by it.

No. 3. A solution of *salt* and *water* was poured into a glass tube, the lower extremity of which is bell-shaped and covered by a piece of bladder; the lower extremity of this instrument—named by Dutrochet an *endosmometer*—was then immersed in a tumbler of pure water, and after a short period, by the constant infiltration of the water through the membrane into the instrument, the solution gradually ascended some distance up the tube.

No. 4. Selecting a second instrument similar to the one described above, *pure water* was placed in it, and the closed extremity dipped in a tumbler containing a *saline solution*. In this instance the water in the instrument, instead of ascending in the tube descended, owing to the rapidity with which the water passed through the membrane to mix with the solution in the tumbler. In each of these instances there were two currents, the water passing in one direction and the solution in the other; the rarer fluid passing more rapidly than the denser one.

To these two currents Dutrochet, in giving the names *endosmosis* (from within to without) and *exosmosis* (from without to within) supposed at first that the energy of the action was due to electricity, but he eventually abandoned that position.

The most satisfactory explanation of this phenomenon, so distinctly manifested in these experiments, is that which regards the invisible pores of the membrane employed as a system of capillary tubes exerting attraction on the fluids passing through them, to mix with each other.

If one of the fluids be more strongly attracted by the tissue than the other, it will, of course, be longer in its passage through the pores; and while the level of the fluid which passes through more quickly will

necessarily fall in the vessel that contains it, that of the slowly traversing one will rise until the increasing pressure of the rising column of water counterbalances the effect of the more powerful attraction. In addition to this there is a tendency which substances have to diffuse themselves uniformly in the fluids in which they are dissolved. Any matter in solution, therefore, which comes in contact with the membrane, will tend to diffuse itself in the fluids of the pores, and with the fluids in contact with the opposite side of the tissue, until the distribution of the substance dissolved is uniform in the two fluids, which the membrane separates.

Imbibition and *transudation*, or *endosmosis* and *exosmosis*, for they are convertible terms, are dependent, therefore, upon the *penetrativeness* of the *liquids*, the *penetrability* of the *membrane*, and the affinity of the liquids for and miscibility with each other.

It is owing to this physical property in the capillary vessels, combined with the elective or vital affinity exerted by the tissues upon the plasma of the blood, that nutrition occurs as an *extra vascular* action. The liquor sanguinis that is to nourish a given tissue passes out as an exosmotic current, and after it has yielded up all the material it held in solution, returns through the parietes of the vessels, as an endosmotic current.

No organized tissue, however dense it may be, is an exception to the operations of this property.

Though the series of experiments* instituted to verify the *permeability of dentine* were conducted with great care, and notwithstanding the fact that they were confirmed by the investigations of others; recognizing the possibility that we might have been deceived, and that the water which was found in the pulp cavity, and supposed to have been imbibed through the microscopical openings in the dental tissues, might have passed between the wax and walls of the cavity of decay; desiring to ascertain the *truth*, we determined to solve that point, and accordingly proceeded as follows: The mouth of a small phial was closed with wax in the *same manner* that the teeth had been; the phial was then placed in water and allowed to remain there for thirty-six hours. On removing it from the water the *interior of the phial was found perfectly dry*. Taking into consideration the impermeability of glass, had any water been found there, it would have been proof positive that it had passed between the wax and the mouth of the phial; failing to do so, its absence is the strongest negative evidence that can be adduced to prove that the water did not enter the pulp cavity by passing between the wax and the walls of the cavity of decay in the teeth experimented upon, but was unquestionably carried in by capillary attraction, exerted through (to the naked eye) the invisible pores of the cementum and dentine.

To recapitulate. The circulation of fluids in the vegetable kingdom; the fact that nutrition is invariably *extra vascular*, and that the fluids

* Dental Cosmos, p. 141.

which nourish the tissues can only escape by transuding through the parietes of the capillary vessels; the phenomena of endosmosis and exosmosis, manifested alike in dead as well as living tissues, due to their *invisible porosity*; the universal operation of this law in all organic structures; the fact that the porous character of the cementum and dentine, though *invisible* to the naked eye, is readily demonstrated under the microscope; the presence of water in the pulp cavities of the teeth experimented upon, and the absence of water in the phial employed, are one and all so many strong and conclusive arguments in support of the permeability of dental tissues; added to these, are the constant opportunities afforded in practice of observing the transudation of liquor sanguinis into the pulp cavities of teeth from which the nerves have been removed. The most remarkable instance of which, that has come under our notice, was a case treated by Dr. Neall and self, in which the flow continued in a very marked manner for three months, notwithstanding the use of creosote, tannin, etc. etc.

Having, on a former occasion, made a practical application of our views on this subject, though they remain unchanged, we do not deem it necessary to reiterate them. In conclusion, whether those views are correct or not, of one thing we feel satisfied,—it is, that truth will prevail.

ON THE STRUCTURE AND ADAPTATION OF THE TEETH IN THE LOWER ANIMALS, AND THEIR RELATION TO THE HUMAN DENTITION. (*Concluded from p. 376.*)—"There is, however, a principle of compensation seen throughout all nature, and while in the vegetable feeders we find numerous examples in which incisors, canines, or molars, as they become worn, are constantly renewed by the agency of their persistent pulps, there is no such provision made for the carnivorous animals.

"The teeth are subjected to much violence, and are not endowed with a reparative power; therefore the lion or tiger, as old age advances, is compelled to seek for prey less able to resist the attack.

"Unhappily for our species, the animals are consequently induced to prowl about the abodes of man, and it has been observed that the man-eater in India invariably proves to be an old tiger whose teeth have been extensively worn or broken.

"The dentition of the carnivorous mammalia presents several modifications adapted to the special requirements of certain genera.

"The hyena furnishes an admirable example of peculiar adaptation.

"In this genus the canines are much smaller than in the Felidæ, while the molars are exactly designed for grinding and crushing bones, the base of each crown being furnished with a powerful ridge, which serves to protect the gum from being injured by the splinters and angular fragments. The tiger or lion pounces on living prey, and rapidly cuts away and devours the softer and more nutritious parts, leaving the bones and less tempting portions, whereas the hyena is a scavenger who watches for the rejected carcasses, and no animal substance is too repulsive for these creatures.

"The whole cranial structure appears formed for bringing into the most available action a most powerful natural instrument for breaking the hard-

est bones into shivers. Dr. Buckland has well compared this action to that of a miner's crushing mill.

"The lion will gnaw the cartilage from a bone and strip off the periosteum with his hook-covered tongue, but the hyena will snap asunder and swallow bones in large fragments.

"As bone forms so large a constituent of their food, the fæces of the hyena are composed principally of phosphate and carbonate of lime; and that eminent geologist, the late Dr. Buckland, successfully availed himself of this fact to explain the cause of the large collection of bones in the remarkable cavern of Kirkdale.

"During a comparatively recent geological period, when our native land was tenanted by the elephant, hippopotamus, and rhinoceros, the tiger, bear, and hyena, this cave had been made the depository of a great quantity of the bones of these and other animals, which were afterwards imbedded in a calcareous deposit or stalagmite. On carefully examining the crushed and splintered fragments, which bore marks of the action of powerful teeth, that acute observer formed an opinion, which was confirmed by the analysis of the coprolites, or fossil excreta, found mingled with the bones, viz., that the cave had been, through a long succession of years, the den of hyenas.

"In the tiger and hyena we have seen that the true molar is represented in the upper jaw by a tooth of insignificant size, but in the badger it is the largest tooth in the jaw. It has three tubercles or prominences on its outer edge, and its broad, horizontal surface is traversed by two low ridges, the lower molars being similarly modified. This dentition is evidently adapted for an admixture of vegetable with animal food, and the badger is said to live on roots, fruits, and honey, with small birds and frogs. It is remarkable, however, that the hinge-like articulation we have noticed in the tiger is so much more perfect in the badger that the condyle is retained in the glenoid cavity after the soft parts have been removed by maceration.

"The cranial ridge is not seen in the young badger; the lower jaw is easily disarticulated, and the sutures of the skull are visible; but in the adult animal the ridge receives an extraordinary development for the attachment of the temporal muscles, the sutures disappear, and the margins of the glenoid cavity are so extended as to inclose the transverse condyle to a degree that renders dislocation impossible. It would appear, however, that these provisions are made rather for defensive than for aggressive purposes. It chooses the most solitary woods for its residence, and is quiet and inoffensive in its manners; but, when attacked, defends itself with a courage and resolution which few dogs of double its size can overcome. It bites angrily, and holds on with great tenacity, which it is the better enabled to do from the peculiar organization to which we have referred.

"We will now turn our attention to some of those animals in which the molar teeth attain their greatest perfection.

"Among these, the ruminants, although characterized by great deficiencies in the other teeth, occupy a conspicuous place. On comparing the skull of the sheep with that of the tiger we see evident marks of inferiority in the small comparative size of the cranial cavity, and the proportionally greater length of the bones forming the face. The orbits, instead of the forward direction, are widely separated, occupying the sides of the head, and are entirely surrounded by a bony ring, its continuity

being completed by the extension of the malar process to the zygomatic arch, which presents a striking contrast, in its smaller size, to the corresponding widely-arched bone in the carnivora.

"The long, slender, intermaxillary bones are destitute of teeth; but in place of incisors the upper jaw is provided with a callous rim, which meets the lower incisors.

"The canines are absent in the upper jaw, and the lower canines so nearly resemble incisors that they have sometimes been described as such; but the alveolar processes are very deep and fully developed for the reception of the long molar teeth, of which class there are three premolars and three true molars on each side of both jaws.

"The lower jaw is so much narrower than the upper that the surfaces of the molars are not in apposition when the jaws are closed and at rest, and their crowns are all placed obliquely; the grinding surfaces of the upper teeth sloping inward, while in the lower jaw they incline outward and downward. As the crescentiform layers of enamel in the compound molar teeth assume a longitudinal direction, they are thus brought into efficient service by the great lateral action of the lower jaw.

"If we watch the sheep or ox, when ruminating, the jaw is seen to take a protruding position, describing the segment of a circle as it is alternately swept from side to side. Instead of the transverse hinge-like condyles of the cat tribe, admitting of motion in the vertical plane only, the condyles of the ruminants are flattened at their articular surfaces, and the glenoid cavities are very flat and shallow, and are much wider than the apposed surface of the condyles; rendering them capable of free horizontal motion, whether laterally or in the antero-posterior direction. As we have noticed, the temporal bone and the zygomatic arch are remarkably small when compared with the corresponding parts in the carnivora, and the deep excavations in the lower jaw, for the insertion of the temporal and masseter muscles are not observed, those muscles being very feebly developed. But to meet the very different requirements of the animal the angle of the lower jaw is greatly developed, to give space on its internal surface for the insertion of the internal pterygoid muscle, while the external pterygoid is inserted nearer to the condyle, their united forces supplying the powerful lateral and oblique motions referred to.

"The human teeth present us with a simple arrangement of the three substances of which mammalian teeth are composed: the greater portion of the tooth consists of dense nonvascular dentine, the crown being covered by a simple cap of enamel, which is conformed in every part to the contour of the crown, and the enamel fibres are arranged at nearly a right angle to the surface on which they rest; the enamel possessing greater density and hardness and a lower degree of vitality than any other animal tissue.

"The roots of the human teeth, and, in a very minute degree, the crowns also, are invested with a layer of cementum; a structure showing a close affinity to true bone, and which, endowed with a far higher amount of vitality than either enamel or dentine, has also the least density.

"Perhaps the structure of the teeth of graminivorous mammals could not be better illustrated than by our conceiving the idea of a number of such simple teeth, modified in outline and soldered together by the greatly-increased proportion of cementum, not only to the surface of the roots, but of the crowns also, thus forming a compound tooth, in which the vertical layers of dentine, enamel, and cementum are intermixed.

"The various patterns in which the folds are arranged serve to distinguish the several genera of animals in which these compound teeth occur. We see a beautiful example of design in this arrangement.

"It is evident that this interfolding of parts, differing so much in hardness, must produce a constantly-roughened surface, which is maintained by the unequal wearing down of the elements of the tooth. The cementum is worn into deep depressions, while the dentine is more moderately wasted, and supports the ridges of enamel, which always retain their sharpness. The folds are arranged in the ruminants in two double crescents, the convexity of which is turned inward in the upper, and outward in the lower jaw; the object of which is to enable them reciprocally to act on each other in the most effective manner.

"A peculiar kind of stone is selected for the construction of millstones, and is valuable on account of the harder particles disseminated throughout its softer constituents. The miller is obliged frequently to dismantle and pick or dress the cutting surface of the stone, to insure its efficiency; but in the teeth of the gaminivorous animals we see the equivalent of a self-dressing millstone.

"The solitary row of front teeth is more perfectly adapted to its purpose than would at first appear. If we watch a sheep grazing we may see how admirably the whole mechanism works together. The prolonged upper lip aids the tongue in sweeping a tuft of grass into the vice formed by the cutting teeth of the lower and the unarmed front of the upper jaw, while the upward jerk helps to sever the herbage from the roots.

"The process of ruminating also supplies an interesting subject for observation, when the sheep are lying down in the fold in the act of masticating the food previously cropped and stored in their first stomach.

"The low murmur of so many sets of animated millstones, when listened to in the stillness of a summer twilight, has a peculiar effect. A brief reference to this function may be desirable.

"The term ruminant indicates the remarkable faculty possessed by these animals of remasticating their food, which they return to the mouth after previous deglutition, a power which results from the structure of their stomachs, with four of which they are always provided. The first three of these stomachs are so arranged that at the will of the animal the food can be directed into either of the three; the œsophagus terminating at the point of communication. The first stomach or paunch is much the largest, and serves as a reservoir for the masses of herbage, rudely broken up by the first mastication. These animals often gather their food in great haste, and very greedily devour rank-growing herbage, a propensity which frequently endangers the life of sheep and oxen, when tempted by a luxuriant crop of green corn. They eat so voraciously that the first stomach becomes over-distended by the quantity of food and the carbonic acid gas evolved from the vegetable mass, and the animals, if not speedily relieved, die of suffocation.

"Some special adaptations in the non-ruminant ungulates will next demand our notice.

"In the horse the incisors are present in both jaws, and are slightly curved inward; the canines, small in size, are developed in the male, and in the upper jaw stand isolated in the wide gap between the incisors and molars, but the lower canines are close to the incisors. These teeth are only rudimentary in the female.

"The premolars and true molars are of equal size and complexity.

"The front teeth of the horse are remarkable for furnishing a test where-

by the age of the animal may for several years be determined. The 'mark,' as it is popularly called, is caused by an oblong fold of enamel which dips down into the crown of the tooth, from the cutting surface to the commencement of the fang. This fold of enamel incloses a column of cementum, the surface of which, from its softer nature, is always worn below the ring of enamel, and becomes stained by the food.

"As the horse advances in age, the constant attrition wears out the mark from the incisors, commencing from the central pair, proceeding in the second and third pairs successively, and still later in the upper incisors also, until, in an aged horse, the entire depth of enamel is worn away.

"The true 'mark' has now disappeared, a spot of the dark, underlying cement alone indicating its former position. The molar teeth, which in their compound character resemble those of the ruminants, differ from them in their great length before dividing into roots. This division does not commence until the crown is considerably worn down, consequently the horse never possesses a perfect crown with perfect roots, which latter are only found in old horses. The coronoid process of the lower jaw offers, as in ruminants, a very limited surface for the insertion of the temporal muscle; and its attachment to the temporal bone is equally circumscribed; but this is amply compensated by the large surface provided for the insertion of the pterygoid muscles in the broad angle of the lower jaw, supplying powerful lateral motion.

"The condyle is more rounded at its margins than in ruminants, and the glenoid cavity is more contracted, hence the masticating action is from side to side, instead of the circular motion observed in the sheep.

"The horse is much more delicate in the selection of food than the ruminants, whose cloven hoofs, by their expansion in soft ground, enable them to feed on the rank herbage in marshy places, where the horse would be inevitably prevented from grazing. The horse selects the more tender grasses, eating them down to the very roots, and leaving the coarser herbage untouched. As the food is swallowed but once, it is masticated thoroughly; and I have been informed by an intelligent farmer that he never knew an instance of a horse being similarly affected with the ox or sheep after indulging in a feast of green corn.

"In the hog tribe we have an example of the true tusk of the ungulated animals; a tooth of conical shape, with a persistent formative pulp, a characteristic which receives its fullest development in the canines of the hippopotamus and the incisors of the elephant. The teeth of the common hog are the same in number as in the horse, with the addition of one premolar in each row; and, among other distinguishing features, may be noticed the progressive increase in size from the first molar to the last.

"The wild boar, the stock from which our domestic breed is derived, usually harbors in the most secluded recesses of the forest, and if aroused to combat, employs the tusks with terrific force, as it rushes past its assailant, inflicting fearful wounds, and sometimes ripping open the abdomen.

"The incisors are leveled forward, and are admirably adapted to aid the truncated snout in turning up the earth.

"The sense of smelling is very acute in these animals, and as it is omnivorous, not a root, insect, or worm escapes the olfactory sense—a faculty which is turned to valuable account by the truffle-hunters of the continent, who train the hog to discover that delicate under-ground fungus.

"In the babyrousa, an animal closely allied to the wild boar, the long and slender upper canines describe a still more remarkable curve, and at

a little distance more nearly resemble horns than teeth. They rise almost vertically through the upper lip, and curve backward until they sometimes pierce the skull.

"Although their use is not positively known, they are not unreasonably supposed to be designed as a defense for the eyes, when the animal forces his way through the luxuriant undergrowth of the tropical forests he inhabits.

"The air is admitted from the frontal sinuses over a large portion of the diploë, or cellular osseous tissue, between the inner and outer plates of the cranium.

"The external surface is thus extended without increasing the weight of the head, a structure which is still more extensively developed in the enormous head of the elephant.

"In the hippopotamus the four upper incisor teeth curve downward, meeting the sides and extremities of the lower incisors, which are straight, and, as in the hog, project directly forward. The powerful upper canines are comparatively short, and are worn obliquely in front in consequence of their abrasion against their antagonists in the lower jaw. The lower canines are still more massive, and form the segment of a circle, the extremity being worn away on the inner or concave side; and as the convex outer sides are furnished with thick enamel, which is not present on the inner, a cutting edge of irresistible power is constantly maintained.

"Unlike the teeth of the ox or horse, there is in these no distinction of root and crown, but the tooth is of equal diameter throughout. The hollow implanted extremity is occupied by a persistent formative pulp, which undergoes progressive calcification, and the tooth glides forward in its curvilinear alveolus, to compensate for the wearing down of the free extremity.

"This mode of growth, however advantageous in some respects it may appear, is occasionally productive of unfortunate results.

"In the specimens on the table we have examples of the wrong direction taken by the tooth in describing an arc of too small a circle.

"In one case the apex has returned upon its base, pressing on the outside of the thin wall of the pulp cavity; and in another it has entered the formative pulp itself, forming a complete ring; a condition which must have inflicted great suffering upon the unfortunate animal.

"The jaws and teeth seem to be constructed for rudely tearing and dividing, but not comminuting the tough vegetables which form the staple food of the animal. It is a most voracious feeder, and the enormous stomach is said to be capable of containing five or six bushels. The articulation of the jaws is peculiar, admitting of their wider separation than in any other mammal, and no one who has ever seen the animal yawn could possibly forget that astonishing performance."

DENTAL REVIEW—DECEMBER.

EXOSTOSIS.—When taking into consideration the fact that, in tertiary syphilis, those bones (the tibia and cranial bones, for instance,) that are least protected by the soft parts from external violence and the vicissitudes of temperature are the most frequent seat of nodes, it cannot be questioned that such influences are active *exciting causes*, in developing the *predisposition* to such formations in those localities. As a corollary to this, it is more than probable that in

the syphilitic, as well as in the gouty and rheumatic diathesis, the constant shock that the teeth are subjected to in the occlusion of the jaws, particularly in mastication, and, in addition to a more limited extent, the variations of temperature that the *periosteum* is subjected to in the use of iced and hot fluids, may act as *exciting causes*, developing any *predisposition* that may exist in such depraved systems to the formation of dental exostosis.

As a correct diagnosis of dental exostosis is attended with many difficulties, the more light we can have to guide us in forming our opinion the better. It would be well to inquire, therefore, when consulted with regard to a constant uncomfortable sensation in a tooth which one can neither refer to an exposed pulp, periodontitis, or sympathetic odontalgia, whether the patient is laboring under either of the diatheses referred to.

To ascertain the influence and to what extent such conditions of the system are instrumental in the development of dental exostosis, a careful examination of all the teeth extracted for persons known to be afflicted with either cachexia would be a new and interesting field of inquiry. Such cases *carefully, truthfully, and accurately* recorded, would be invaluable data to the dental practitioner. A mere collection of pathological specimens, unaccompanied by a history of each case, upon which general principles may be based, will throw but little light upon the diagnosis or treatment of such affections. Without such history, the collection (however extensive it might be) would only constitute an excellent museum of abnormal curiosities.

We were led to the above train of reflection after reading Dr. Richardson's lecture on Necrosis, Exostosis, and Caries, published in this number of the *Review*. Our limited space only admits of the presentation of that portion which relates to exostosis. This is given entire. He remarks:—

“The term *exostosis*, in surgical language means, as its derivation (ἐξ, out of, and ὀστέον, a bone,) implies, a tumor arising from bone. While the term having this signification has been always applied to bony structure, it has been often used in a loose and general way. It has been employed to designate any kind of enlargement of bone itself, or of the parts surrounding. Thus, malignant or cancerous disease of the bone has been brought under this head.

“Sir Astley Cooper, in his works, divides exostosis into two varieties: one, ‘the periosteal,’ in which the enlargement commences between the periosteum and the bone; the other, ‘the medullary,’ in which the enlargement commences in the medullary membrane and cancelli; but he, too, held confused views on the matter, inasmuch as he classified, under the name of ‘fungous exostosis,’ a form of osteoid cancer resembling the fungous hæmatodes of the soft parts.

“Modern surgeons confine the term to enlargement of bone, in which the bone structures enlarge at some particular point, but in which there is introduced no new special element. Thus conceived, exostoses are of

two kinds: the hard or 'ivory exostoses,' occurring most commonly in the compact tissue of flat bones; and the soft or medullary exostoses, which grow more quickly, form more determinate tumors, and are most difficult to remove. In both varieties, the chemical and microscopical characters of bone structure remain the same. If an exception occurs to the rule, it relates to the first, or hard exostosis, in which the relative quantity of inorganic and organic constituents are sometimes slightly modified, the inorganic prevailing.

"The causes of exostosis are often very obscure. The disease would seem, in some cases, to take an hereditary type. Pre-existing syphilitic disease appears in other cases to have formed the developing cause. Sometimes the predisposition being present, the disorder is excited by some slight injury to bone; at other times it occurs without any obvious excitation.

"In the ordinary run of cases, the exostosed mass forms a distinct tumor, and increases simply as such, retaining only a neck of connection with the bones from which it has arisen. In other cases, the tendency to new bone growth may be widespread, and the new developments may involve many bones, and tie one bone to another. I once was shown, in the museum of the Manchester Royal Infirmary, the skeleton of a woman whose ribs, posteriorly, were bound together by vertical and oblique bands of bone structure, which formed what might be considered a case-work over this part of the skeleton. This form of false development is very uncommon.

"Such is an outline of exostosis, as occurring in bone: in the tooth the disease is not materially different. Perhaps, if we could understand the nature of the process in its full extent, we should find there was no difference at all between dental exostosis and that form of bone exostosis which I have called, after Sir Astley Cooper, 'periosteal.' The more obvious pathological changes in the tooth are enlargement of the fang, not unfrequently a union of the fangs, and sometimes an absorption of the intervening alveolar projection between two teeth, and union between the tooth exostosed and its neighbor. We have on the table before us illustrations of all these varieties of exostosis. On making close inspection, we find that the enlargement is confined to that part of the tooth called the cementum, the structure of which, I need scarcely say again, is identical with bone. The investing membrane is thickened, and the microscopical peculiarities observed in recent specimens lead to the inference—I am speaking in general terms, for I do not think the subject is yet thoroughly worked out in detail—that a new and excessive secretion of bone matter is being developed from the investing membrane.*

"In studying the pathology of exostosis, and especially of exostosis of the teeth, we must, to arrive at a correct history, glance not only at the microscopy, but at the chemistry of the subject. In examining some of the many specimens of exostosed teeth, which you, in your kindness, have laid before me, I observed that in two of them there existed between the fangs a softish, dry, earthy, whitish-yellow substance, which, closely connected with the tooth, was clearly not of the same structure. Filing down the fangs of these two and subjecting them to analysis, I precipitated from them crystalline bodies, which have the characteristics

* See, on these points, Mr. Tomes's observations on "Exostosis, including Dr. Shelley's description of an exostosed tooth."—(*Dental Surgery*, pp. 428-440.)

of uric acid, that acid which, as we have seen, is present in excess in gout, and forms with soda the gouty connection so often met with in the joints. Coupling this fact of the detection of uric acid in the way described above, with certain symptoms which mark, as I have thought, the origin of dental exostosis, I was led some time since to link the exostosis with the gouty diathesis, and I have deferred the delivery of this lecture for several weeks, in order to extend the inquiry as to the presence of uric acid in teeth presenting signs of exostosis. I have thus examined exostosed portions of sixty teeth, not individually, but in four divisions, so as to obtain sufficient quantity of matter for analytical inquiry. In one of these groups, crystals of uric acid were distinctly yielded; in the remaining, there was no evidence whatever of the acid. The quantity of acid, moreover, supplied by one of the four groups (in which was included the pulverized mass of ten teeth) yielded less evidence of the acid than did the two teeth used in my first experiment. I am bound, therefore, to conclude that in the later observation, where the acid was found, it was yielded by an exceptional tooth, and that the deposit of the acid in combination with a base in, or, I had better say, upon, an exostosed growth, is of rare occurrence, but so well marked, occasionally, as to leave no doubt of its existence.

"The exciting causes of exostosis of the cementum are obscure; more obscure than those which give rise to the disease in bone. The cementum, inclosed in its alveolar case, secured from friction, and secured from trifling injury, is in a position to be protected from external influences. It is, moreover, peculiar as a fact, that the most perfect tooth in the jaw is to appearance as liable to the disease as one in which the enamel may be destroyed, and caries is doing its work. Further, the disease is quite independent of any indication of analogous disease in the alveolus; it appears to be connected primarily with the periosteal membrane, and to be dependent throughout on inflammatory action more or less acute occurring in that membranous surface.

"In the absence of an exciting cause sufficient of itself to induce this form of inflammation, we are led to seek for a cause which is predisposing. From such observation as I can collect, I infer that the disease is connected with those conditions of the system which are called rheumatic and gouty. As we have before described, these diatheses are evidenced by the occurrence of inflammatory disease of fibrous structures, and if I am not incorrect, the periosteum of the teeth is in no way exceptional as a structure liable to these specific forms of inflammation.

"The symptoms of exostosis are of two kinds, those which are general and those which are local. The general symptoms, if they are not decidedly indicative of rheumatism or of gout, specially of gout, border on the symptoms of these diseases. In the early stage there is feverishness more or less marked, muscular and neuralgic pains, headache, foul tongue, and dyspepsia. In later, or chronic stages, there is frequent if not persistent dyspepsia, increased easily by excesses and indolence. I dwell on these general symptoms as attendant on exostosis, and often premonitory of it, because I find while they are but little considered in practice, they are the more apparent and important the more they are subjected to observation.

"The local signs of exostosis are difficult to define. If the tooth is diseased, *i.e.* carious, it is hard to say whether the symptoms complained of are due to the caries or to enlargement of the fang. If the tooth is sound, the diagnosis is more obscure still. The symptoms well marked

are, however, somewhat after this order. The first local symptom is a sensation of fullness in the lower part of the tooth. It is described as not very painful, but annoying, and attended with a feeling of increased warmth, and perhaps of throbbing. The patient may be conversant of the fact that the pain is external to the tooth, or at all events that it is different to what is known as common toothache. Sometimes it is increased by pressure made upon the tooth or by a slight blow inflicted upon it, or by shaking it, but this is by no means to be considered as an invariable rule; it is often attended by pains in neighboring parts, which are either reflected through nerves or are occurring in the branches of the fifth pair from independent mischief in the nerve sheath. In time, if the exostosis is progressive, the special local signs above described become more intensified and more clearly localized; and the patient, worn out with anxiety, and only the more perplexed by remedial measures, insists on extraction as the last and only resource.

"The treatment of exostosis rests entirely on diagnosis. Granting that the diagnosis of the disease is clear, there cannot be two opinions, I think, as to the propriety of extraction. Out of the reach of all remedial measures, the mischief goes on increasing every day, to lead ultimately, if left to itself, to increasing suffering, and to a train of secondary evils, affecting the nervous system, dangerous, and it may be fatal, in their results.

"Yet there is one point of practice to which I would direct attention in all doubtful cases. It is to endeavor to establish at once either a cure or a more correct diagnosis by a special treatment. The symptoms of exostosis may sometimes be the result of temporary irritation conveyed to the membrane surrounding the tooth, either by a poisoned blood, or by reflection of pain through the nerves. If, then, the patient present decided symptoms of gouty diathesis, it will be advisable, before extracting what seems to be a sound tooth, to suggest a course of dietary or of medicine, which may remove the actual manifestations of such diathesis; or, if the patient show indications of a neuralgiac tendency, it may be well to suggest the steady administration of quinine for a space of a month at least. These alternatives failing in their intention, extraction is, as I have said, the last and most reasonable remedy. I need scarcely add that in these cases the extraction to be successful must be perfect. To leave behind a necrosed fang is to do worse than nothing."

The lecture from which this extract is taken is the last of the admirable course delivered by Dr. Richardson before the College of Dentists of England. Throughout the entire course he has maintained the polished and forcible style, and has treated all of his subjects in the logical manner that characterized the first efforts. On different occasions, candidly confessing a want of familiarity with a portion of his subject, (which alone could be expected from a specialist,) he has invariably, to the best of our judgment, made a judicious, clear, and happy application of general principles to our department of science. It is to be hoped that Dr. Richardson will publish these lectures in book form; for, though regretting that they were not written by a dental practitioner, we cannot but regard them as a valuable addition to our literature, and feel satisfied that *the* work, if published, would meet with a rapid circulation and be the means of doing much good.

PERISCOPE OF MEDICAL AND GENERAL SCIENCE IN THEIR RELATIONS TO DENTISTRY.

BY GEO. J. ZIEGLER, M.D.

Odontography.—*The British and Foreign Medico-Chirurgical Review* for January contains a somewhat elaborate review of the several works “*On the Development of the Teeth, and on the Nature and Import of Nasmyth’s ‘Persistent Capsule,’*” by THOS. H. HUXLEY, F.R.S.; “*On the Structure and Mode of Formation of the Dental Tissues according to the Principle of ‘Molecular Coalescence,’*” by GEORGE RAINEY, M.R.S.C.; “*A System of Dental Surgery,*” by JOHN TOMES, F.R.S.; and “*The Transactions of the Odontological Society.*” The whole of this article is worthy of republication, but our space is so limited that we can only make room for the following extract therefrom:—

“The publication by the late Mr. Alexander Nasmyth of the views of the Swedish and German physiologists on the structure and development of the teeth, in 1839, followed by Mr. Owen’s admirable work, ‘*Odontography,*’ may be considered as the commencement of the modern era of dental surgery. Mr. Tomes’ elaborate course of lectures on the subject, however, delivered at the Middlesex Hospital, first published in ‘*The Medical Gazette,*’ and subsequently in a volume, entitled ‘*A Course of Lectures on Dental Physiology and Surgery,*’ laid the foundation of scientific practice, by establishing a line of treatment of the diseases of the teeth based upon physiological and pathological knowledge; and, indeed, to Mr. Tomes is due the credit of having written the first account of the structure of the teeth in this country, furnished in a paper describing his researches, and read before the Royal Society, June 21st, 1838, entitled ‘*On the Structure of the Teeth, the Vascularity of those Organs, and their Relation to Bone.*’

“The researches of the Swedish, German, and English physiologists on the structure and development of the teeth are given in the fifteenth number of this periodical. The authors therein quoted are, Fraenkel, Raschkow, Müller, Retzius, Tomes, Owen, Goodsir, and Nasmyth. They generally agree in the correctness of the conversion theory, viz., that the elements of the pulp are transformed into dentine, that the enamel is formed from the enamel organ or enamel pulp, and the cementum from the capsule. The subject has subsequently been investigated by Mr. Huxley, who has arrived at conclusions different from those of the above-named authors, and we now proceed to give an outline of his views.

“For the purposes of examination, Mr. Huxley takes the skate, the mackerel, the frog, the calf, and man, as accessible specimens of each of the great divisions of animals possessing teeth. In dealing, first, with the question, what are the structures concerned in the development of the teeth? Mr. Huxley states that there are two modes of their development, viz., that in which the pulp is never free, but from the first is included within the capsule, as in the mackerel and frog; and that in which the pulp projects freely at one period above the surface of the mucous membrane, becoming subsequently included within a capsule formed by the involution of the latter, as in the human subject. The skate offers a sort of intermediate stage.

"He then gives an analysis of the developmental conditions of the mackerel, the frog, and the skate, the inference of which is, that in both the mackerel and the frog the papilla is wholly a process of the derm (or that which in a mucous membrane corresponds to it) outward, while the sac is a process inward of the same structure, and that the homogeneous substance, with its embedded nuclei between the two, corresponds with the epidermis or epithelium; he states that in the skate the follicle is not an involution of the derm, the papilla is a process of it, and the epithelium between the two becomes metamorphosed sometimes into a peculiar stellate tissue.

"In tracing the conditions in man, Mr. Huxley states that a space filled with a fluid always exists between the inner surface of the capsule and the outer surface of the pulp—the two are perfectly free from all adherence to one another—and in addition to the above fluid is a more or less abundant whitish matter, which sometimes adheres to the one and sometimes to the other (Goodsir.) A structureless membrane, the membrana preformativa of Raschkow, (the basement membrane of Bowman,) may be traced over the whole surface of the pulp, and in perfect continuity on the walls of the capsule—in fact, into its basement membrane. He then gives a description of the whitish substance between the basement membrane of the pulp and that of the capsule, and infers that from its structure and its relation to the above membranes, it is nothing more than the altered epithelium of those organs. It is the so-called '*enamel organ*' of authors.

"Mr. Huxley then pays a tribute to the late Mr. Alexander Nasmyth for having, as he thinks, published the first accurate and detailed account of this so-called enamel organ in his work, '*Researches on the Development, Structure, and Diseases of the Teeth*,' 1849. After quoting the description, he concludes that in man, as in the skate, the mackerel, and the frog, the tooth pulp is a dermic process bounded by its basement membrane; that the capsule is an involution of the derm, bounded by its basement membrane, and that the epithelium of these organs lies between them, having in this case received the name of '*enamel organ*' from the supposition that the enamel was developed by the calcification of its elements. Mr. Huxley then points out that the '*actinenchymatous*' tissue (Raschkow) of the calf occupies a wide interval between the basement membrane of the capsule and the alveolar wall, and does not correspond with the stellate tissue of man, as has been assumed by all writers; but that the true homologue of the '*enamel organ*' in man, is in the calf a thin layer of elongated cylindrical epithelium cells, between the wall of the capsule and the surface of the pulp.

"Mr. Huxley next inquires into the relation of the dentine, enamel, and cement to the pulp, the capsule, and enamel organ, and states that neither the capsule nor the '*enamel organ*' takes any direct share in the development of the dental tissues, all three of which, viz., enamel, dentine, and cement, are formed beneath the membrana preformativa or basement membrane of the pulp. The prominent point of evidence adduced in proof of this assertion is the demonstration of a voluminous transparent membrane about 1-2500th to 1-1600th of an inch thick, which by the addition of strong acetic acid may be raised from the surface of the pulp in a human fetus at the seventh month, beneath which, Mr. Huxley states, the ends of the enamel fibres may be very distinctly seen. Under a high power, the surface of the upper part of the ossified cap

appears reticulated, the meshes being about 1-5000th of an inch in diameter, and the membrane exhibits innumerable little ridges upon its outer surface about 1-5000th of an inch in diameter. At its lower edge this membrane passes into the membrana preformativa—in fact, it is the altered membrana preformativa itself. A membrane corresponding with that described in the human subject is also found in members of each of the other groups of vertebrata which possess teeth, presenting, Mr. Huxley thinks, correlative evidence of the correctness of his views. Mr. Nasmyth is again alluded to as having described this membrane under the name of the ‘persistent capsular investment;’ but Mr. Huxley adds, that he, like all who have succeeded him, misled by the supposed mode of development of the enamel from the enamel organ, imagined that as the ‘persistent capsule’ was outside the enamel, it could be nothing else than the membrane of the dental capsule. Mr. Huxley then concludes that since this ‘Nasmyth’s membrane’ is identical, on the one hand, with the persistent capsule which lies external to both enamel and cement, and, upon the other hand, with the preformative membrane of Raschkow, or otherwise with the basement membrane of the pulp, it is clear that all the tissues of the tooth are formed beneath the basement membrane of the pulp—in other words, they are all true dermic structures, none epidermic.

“Mr. Huxley asks, thirdly, what is the relation of the histological elements which enter into the composition of the soft parts, to the dentine enamel and cement, which are formed from or within them? In entering upon this problem, Mr. Huxley denies the correctness of the conversion theory, viz., that the histological elements of the pulp become calcified and converted into dentine; and believes that the dentinal substance is deposited within the pulp beneath the membrana preformativa. This he proposes to call the ‘Deposition Theory.’ In refutation of the former (the conversion theory) Mr. Huxley adduces the absence of nuclei in young dentine, which he failed to discover, even when, by the use of strong acids, the calcareous matter was dissolved out; though those which exist in the pulp became much more distinct and even coarse in their outlines, the bodies which have been described as nuclei being, he says, simply lacunæ. Again, by the addition of a solution of iodine to the pulp, its nuclei are demonstrated by becoming brown, but the dentine under this agent remains pale. Mr. Huxley is more satisfied with this negative evidence, as in young bone it is easy to demonstrate the nuclei in the lacunæ by the aid of acids. He thinks the enamel affords still less evidence of conversion from a cellular structure; between it and anything which can be called a nucleated cell, it has on the outside Nasmyth’s membrane, on the inner the layer of dentine, which in man is formed before it; and he points to the dermal teeth or plates on the upper surface of the head of the skate having as distinct a layer of enamel as those of the mouth, though in this case there is neither rudimentary capsule nor ‘enamel organ.’ In a morphological point, Mr. Huxley thinks the cement is homologous with the enamel; in proof of which, allusion is made to a section of a human tooth, the upper portion of the cement of which exhibits in places a very distinct striation resembling its perfect enamel. Again, the cement on the fang of a molar of a young calf which had not cut the gum consists of an external Nasmyth’s membrane, internal to which three-fourths of the thickness of the layer are formed by parallel fibres 1-5000th of an inch in diameter, quite structureless, and completely

resembling enamel fibres; these were softened and rendered pale by the action of caustic ammonia. On the root of the fang of the molar in front of this, which had cut the gum some time, and had come into use, the cement had the ordinary structure. In these teeth, the capsule, though closely connected with the outer surface of the fang, could be readily stripped from it, and then exhibited a layer of epithelium upon its inner surface, showing clearly that the cement was not derived from its ossification. Mr. Huxley concludes:—

“1. The teeth are true dermic structures, formed by the deposit of calcareous matter beneath the basement membrane of a dermic papilla, or that which corresponds with one.

“2. Neither the capsule nor the ‘enamel organ,’ which consists of the epithelium of both the papilla and the capsule, contribute *directly* in any way to the development of the dental tissues, though they may *indirectly*.

“3. The histological elements of the pulp take no direct part (except, perhaps, eventually in the cement) in the development of the dental tissues, becoming either absorbed or being pressed in by the gradual increase of the latter; and the dentine is formed, not by ossification of the histological elements of the pulp, but by deposition of it.

“Mr. Rainey has put forth another theory, viz., that the mode of calcification of the dental tissues is identical with that by which bone and shell are formed, viz., the principle of ‘Molecular coalescence,’ and that the dentinal tubules have no distinct parietes, but are merely spaces bounded directly by the dentine fibres and the partially coalesced dentine globules. He published his views ‘On the Formation of the Skeletons of Animals, and other Hard Structures formed in Connection with Living Tissues,’ in the fortieth number of this Journal. A subsequent communication was made by him to the ‘Journal of Microscopical Science for July, 1859,’ detailing his researches with special reference to the structure and development of the teeth. In tracing dental development, Mr. Rainey states that, in a cusp in which calcification has made but little progress, a membranous border is distinguishable, extending from the lower margin of the shell of tooth substance; which, having the same relation to the calcified portion of a young cusp that the membranous edge of a flat bone has to the ossified part, he proposes to call the ‘membranous matrix of the cusp.’ It is situated between the enamel and dentine pulps, its surfaces being respectively in contact with the corpuscles of each, and its free margin lodged in the groove formed by their union, to which groove it is united by exceedingly fine connective tissue.

“After the deposition of calcareous particles on it, this structure divides into two layers; one the membranous matrix of the dentine, the other, the membranous matrix of the enamel. It appears to be made up of very delicate flattened corpuscles of different shapes and sizes, but generally longer in the vertical than in the transverse direction of the cusp.

“In speaking of the formation of dentine, Mr. Rainey says its first indication is the appearance of very minute and more or less scattered bright particles, like very fine particles of dust, on the inferior surface of the membranous matrix, a short distance from its lower border. These globules become arranged in lines, or globular masses, and by their ultimate coalescence the lines become fibres or rods of dentine. This pro-

cess, says Mr. Rainey, is exactly the same as that which takes place in the calcification of the claw of the lobster. The spaces between the rods, or between the partially coalesced globules or granules, are the so-called dentinal tubules. In proof of the absence of parietes to the tubes, Mr. Rainey argues that, as the above named dusty-looking material—incipient dentine—always intervenes between the partially formed tubes and the dental pulp, all the fluid which is contained in their interior must have first passed through mere interstices or spaces; hence if at this, the most important epoch of a tooth's formation, mere spaces have sufficed for the conveyance and supply of interstitial fluid to its substance, he does not see why parietes should be afterwards added to those spaces, as by such an addition a complex form of structure would be superadded to a simple one, after the tooth tissues had ceased to perform any obvious organic function; thus this substitution of tubes with parietes for mere spaces, would come too late to serve any obvious purpose. Mr. Rainey thinks the shape of the spaces favors his views; he says that the rods or fibres are of a quadrilateral form, and assume all directions, from the pulp cavity to the external surface between a vertical and horizontal axis; and that the spaces are formed at the conflux of every four, passing more or less deeply between each adjoining pair, and depending upon the degree of coalescence of contiguous rods. Now, if a section be made through such an assemblage of fibres and passages as above described, Mr. Rainey says the cut rods will present sections of various forms—some will be nearly square, others diamond-shaped, and a third set linear, depending upon their several directions; and the spaces will partake of the same form, being at first more or less circular, and then becoming angular or arrow-shaped; and where the rods are imperfectly formed, being made up partly of globular portions, the passages running between them will partake of the same form. Now if these rods had inclosed tubes of the form represented by some authors, Mr. Rainey maintains that their sections must have presented first circular areas, and then ovals, becoming gradually more eccentric until they ended in forming straight lines. Mr. Rainey is not disposed to recognize the appearance of rings with a dark point in the centre in transverse sections of dentine, as evidence of the existence of tubes. In refutation of such proof he adduces the structure of the siliceous cuticle of the common cane, which at the conflux of every three of the hexagonal blocks of silica of which it is composed presents the same forms and appearances as have been described in the dentine, viz., the annular, arrow-shaped, and linear forms.

“Mr. Rainey states that the particles of the enamel are known from those of the dentine by their parallel linear arrangement in contradistinction to the rows of globules and spherical masses of the latter tissue. These particles join, form continuous wavy lines, and coalesce into the ordinary form of enamel, in which all appearance of the antecedent stages become more or less obliterated. The fibres of newly-formed enamel soon show a disposition to break up into irregularly quadrilateral forms, but Mr. Rainey says he has never met with the regular hexagons described by some authors: he thinks that the explanation he has given of the mode of formation of dentine and enamel will explain the laminated character of these tissues, its distinctness depending upon the completeness or incompleteness of the coalescence of the dentine and enamel particles; the inter-globular spaces about the extremities of the laminae, and the

contour lines or markings, and the absence of any appreciable spaces in some parts of all teeth, are, he thinks, also explicable on the same principle.

"Mr. Rainey regards the osteo-dentine, or 'crusta petrosa,' as formed on a membranous matrix, directly continuous with and similar in structure to that of the dentine; and the primary particles are only to be distinguished from dentine particles by their subsequent arrangement. They coalesce in the same manner, but in place of taking a rectilinear arrangement they have somewhat of an arborescent form, the small spicular branches of which anastomose and inclose areolæ of a more or less circular form. These may be regarded as Haversian canals, lacunæ or canaliculi, and in the event of their containing vessels, must of course be considered as the former. This tissue being considered as bone, Mr. Rainey has called the vessels and epithelial corpuscles in contact with its matrix 'the bone pulp,' and thus the analogy between bone and dentine is preserved; the pulp cavity of a tooth corresponding to a true Haversian canal, the spaces between the dentine rods to the lacunæ, and the extensions of these spaces between uncoalesced portions of dentine to the canaliculi of common bone. The enamel presents similar analogies, but less obvious and striking.

"In tracing the development of the dental tissues, Mr. Rainey says: 'It is obvious that both chemical and physical effects have been produced; the formation of new compounds is a proof of the one, and the definite forms which have been taken up by their aggregated molecules are a proof of the other.' He believes that these effects are due neither to the sole influence of vitality nor to the exclusive operation of physical forces, but that they are produced directly by physical and mechanical agency under the control of a general vital principle."

Neuralgia Faciei, with a New Operation for its Cure.—DR. CARNOCHAN read a paper upon this subject, before the Medico-Chirurgical College of New York, which is published in the *Amer. Med. Monthly* for February. He gives therein a valuable resume of the surgical literature and treatment of this severe and troublesome affection, which we would like to copy in extenso, but can only present the following summary:—

"In this paper the author gave his views of the pathology, seat, and treatment of neuralgia of the face, and described his latest operation for exsection of the trunk of the second branch of the fifth pair of nerves, as far as the foramen rotundum of the sphenoid bone—an operation which he considered an improvement on the one he first proposed for the exsection of that nerve.

"In conclusion, he embodied his views in relation to aggravated neuralgia of the face in the following propositions:—

"I. That the second branch of the fifth pair, extending from the ganglion of Gasser to the foramen infra-orbitale, has two peripheries: one, formed by the terminal branches of the trunk, given off along its course, to the superficial parts of the face; the other, by the terminal branches emanating from the ganglion of Meckel.

"II. That in cases of severe *tic douloureux*—the *dolor crucians faciei* of Fothergill—the seat of the disease is in a portion of the trunk of the nerve, or in the entire trunk, between the ganglion of Gasser and the foramen infra-orbitale, including that part embraced by the foramen.

"III. That the trunk of the nerve being injured or diseased, pain is felt at its periphery, as well as in the part morbidly affected.

"IV. That impressions, acting upon the periphery of the nervous trunk, will be reflected upon the trunk, and give rise to paroxysms of neuralgic pain.

"V. That the ganglion of Gasser, or the *common trunk* of the fifth pair, cannot be the seat of the disease, because experiments upon living animals, and pathological facts derived from post-mortem examination, demonstrate that, when this ganglion and the trunk of the fifth pair are destroyed or injured, the eye of the corresponding side becomes destroyed from defective nutrition, and also that the other organs of *special sense* manifest symptoms of functional disturbance.

"VI. That the encephalic strands of the fifth pair, on the cerebral side of the *common trunk*, cannot be the seat of the disease; as in such condition of the brain there would be symptoms denoting cerebral disturbance or disease, which never exist in tic douloureux.

"VII. That division of the nerve externally to the foramen infra-orbitale, or anterior to the diseased portion of the trunk, will not effect a cure: because the point of disease being still left, the morbid sensibility is referred to the locality of the periphery, although that has been removed, or insulated.

"VIII. That when only a portion of the trunk of the nerve is removed, anterior to the ganglion of Meckel, the remaining portion may become affected with the disease, and the symptoms be renewed with the same severity as before the operation.

"IX. That the only operation which will cure the disease is the exsection of the trunk of the nerve on the cerebral side of the ganglion of Meckel: because, first, the diseased part will thus be removed; second, because the two peripheries of the nerve must thus be insulated from the encephalon; third, because the influence of the ganglion of Meckel, in supplying morbid nervous sensibility, is destroyed; fourth, because the sensibility of the two peripheries of the nerve is obliterated, and consequently external impressions cannot be reflected or transmitted.

"X. That there is a possibility of the neuralgia returning for a time, even after the exsection of the trunk beyond the ganglion of Meckel, from disease attacking the small portion of the nerve still remaining in front of the ganglion of Gasser, or from pressure upon it, resulting from osteitis and contraction of the foramen rotundum; the pain being referred, as already explained, to the original seat of the periphery.

"XI. That in such a case, however, the stump of the nerve, whether diseased or compressed by the circumference of the foramen rotundum, would be placed under circumstances leading to atrophy or resolution; and that the disease, existing for a short time from such causes, would eventually subside.

"XII. That the three trunks of the fifth or trifacial nerve, emanating from the ganglion of Gasser, and supplying in their aggregate the general sensibility to the face, when affected by neuralgia, are to be subjected alike to the same rules in regard to the etiology, pathology, and treatment."

"*A Case of Morbid Growth of the Gums.* By J. P. H. BROWN, Dentist, Atlanta, Ga.—There is no disease of the gums (except a malignant

type) that tries more the skill and remedial resources of the physician or the dentist than that form attended with a morbid growth of those parts where the enlargement is often so considerable as to cover entirely the crowns of the teeth. This enlargement has been confounded by several writers with hypertrophy; but it is entirely different. Hypertrophy is not of itself a morbid process, though we frequently find it connected with disease. While, on the other hand, in the morbid growth of the gums, the vital properties of the molecules are altered, and their arrangement seems to be different from what it is in the normal tissue.

"This singular affection appears only to occur in persons possessing certain constitutional tendencies, and is always excited by local irritants: by salivary calculus, a crowded or misplaced condition of the teeth, dead fangs, etc.

"The following case came up for treatment during the month of last September. The subject was a gentleman, aged about twenty-seven, and possessed a scrofulous diathesis. His gums were very much enlarged in both maxillæ, but more in the upper than in the lower. The molars and bicuspsids, on the right side, were nearly covered, rendering the process of mastication very painful. The gums were of a dark, livid color; bled upon the slightest touch; and were attended at times with a prickling or itching sensation; their edges were thick, hung loose around the sides of the teeth, and discharged a fetid purulent matter when pressed upon.

"During the first sitting, I cut away the greatest portion of this morbid growth with the gum lancet, by making a horizontal incision around the gums down to the necks of the teeth. Nitrate of silver, in stick, was then applied. After giving the patient a solution of the caustic, to be applied to the gums, with a camel's-hair pencil, twice a day, I sent him to his physician, with the understanding that he was to return to me in the course of a week.

"By the way, I may remark that his physician ordered—R. chlorate of potash, $\mathfrak{z}\text{i}$, aqua $\mathfrak{z}\text{vi}$; a tablespoonful to be taken three times a day. A bland diet was recommended, and all salted meats were to be eschewed. In all cases of this kind local treatment alone is not sufficient, and no dentist, but a *machine*, would think of relying upon it. I send many patients, for the good of their *teeth*, to the physician, and I know many intelligent physicians who send some of their patients, for the good of their *bodies*, to the dentist.

"When I saw the patient again, I found the gums were beginning to assume a healthy condition, but the teeth were badly coated with tartar, which I thoroughly removed. At this sitting I also removed, with a lancet and a triangular-shaped scaling instrument, all remaining portions of morbid gum, down to the alveolar processes. An astringent gum-wash was now used. In three weeks time his gums were restored to a sound, healthy condition.

"In this case the tartar, which had insinuated itself up under the free margin of the gums, was undoubtedly the exciting cause of the disease, which was favored in its development by the peculiar constitutional tendencies of the patient. In a person of a healthy, vigorous constitution, the same immediate or exciting cause would probably have only manifested itself in a slight inflammation of the gums."—*Atlanta Med. and Sur. Jour.*, Dec., 1859.

Metropolitan School of Dental Science.—On Tuesday evening, the seventeenth instant, Mr. Hulme, F.L.S., Lecturer on Dental Surgery at this school, delivered the first of a course of six lectures “On the Structure and Development of the Teeth.”

“The lecturer commenced by referring to some of the earlier writers on the teeth. Eustachius distinguished the enamel from the rest of the tooth. Tenou first pointed out the presence of the crusta petrosa, or cement, on the fangs of the teeth of certain granivorous animals. Leeuwenhoeck distinctly announced the tubular structure of teeth and bone as far back as 1778, but his observations were entirely forgotten until Retzius referred to them, after Purkinje and himself had rediscovered the peculiar character of tooth-bone, in 1835. The lecturer next pointed out the presence of an analogous tubular structure in the shell of some of the crustacea, and in the enameled scales of certain fishes. After giving a general description of the arrangement of the teeth in the fish, and pointing out the bones to which they are attached, Mr. Hulme proceeded to describe some of the modifications of the dental tissues. The simplest, but at the same time the rarest, condition in the fishes is a simple conical pulp invested by a layer of dentine, which, becoming more compact toward the outer surface of the tooth, produces the shining external coating which is commonly mistaken for enamel. This kind of tooth is met with in the lophius. The more usual condition of the tooth structure is exemplified in the common pike. In the teeth of this fish the pulp subdivides, and forms a complicated series of communicating branches, except toward the apex of the tooth, where it is undivided. At the sides of the tooth the pulp forms a number of loops; it is beyond these loops that the outer, compact, enamel-like layer of dentine is formed. The interspaces of the branches of the pulp are filled up by a coarser network of dentinal tubes, which constitute the body of the tooth. In the globe fishes the jaws are incased by alternate layers of dentine and bone; the latter, wearing away more rapidly than the dentine, produces a rough grinding surface. The tubes of these layers of dentine are tolerably close together, but their branchings are exceedingly irregular, and cross each other in every conceivable manner. The last modification referred to was one which is met with in the pharyngeal teeth of the parrot-fish. In these teeth there is a central mass of very compact dentine, which requires a magnifying power of six hundred diameters to separate the tubes from each other. Around this central portion is a layer composed of irregularly branching tubes, and, most externally, a third layer, in which the tubes pass parallel to each other, and at right angles to the surface of the tooth. The use of these different layers is to produce a rough uneven surface, by the aid of which these fish grind down the fragments of the slender branching coral upon which they feed.”—*Lancet*, January 28, 1860.

MISCELLANY.

In an extract from the *London Literary Gazette* in the *Annual of Scientific Discovery* for 1860, it is stated that “a little invention for the prevention of gas smoke has recently been patented and introduced in London. It consists merely of an ornamental circlet of metal, across which is stretched a sort of sieve of fine platina wire, and it is intended to be placed as a cover on the top of the globe or chimney. The result

is most remarkable. The smoke appears to be instantly annihilated, and the flame both increases in bulk and becomes brighter and more clear. The photogenic improvement is stated to be from twenty-five to thirty per cent. All effluvium from the gas is destroyed, and the discoloration of the ceiling and decorations of the room prevented by the use of this simple apparatus."

It is also mentioned upon the authority of the *Cosmos*, that if gutta-percha be dissolved in sulphuret of carbon, the liquid will separate into three layers, the upper of which contains mucilaginous matters, and the lower earthy compounds and other impurities; while the middle layer remains perfectly limpid, and contains the pure gutta-percha. This may be separated from the others by means of a siphon, and be employed for various purposes. It is here recommended for the covering and preservation of fruits.

According to the same work, Pelouze has made some experiments on the decomposition of glass by water. He finds that, while glass vessels in which water is boiled are but very slowly attacked, powdered glass is thus decomposed with remarkable ease. Thus, a pint flask, in which water was boiled for five days, lost scarcely a decigramme; but when the neck of this flask was powdered, and boiled for the same time with water, the decomposition extended to as much as one-third of the mass. The experiments show that glass, containing a larger proportion of lime than of soda, is less easily decomposed by water than when the soda is in excess, and that it is chiefly the basic constituents of glass which are extracted by the water. It is also observed that all ordinary kinds of glass undergo gradual decomposition when exposed in fine powder to the atmosphere.

In the notice of a paper upon the action of coloring matter on living tissues, by J. GERLACH, published in *Schmidt's Jahrbücher*, the *North American Medical Reporter* observes: "It seems that while the nucleus and cells of dead tissue readily take up coloring matters, the latter have no effect on those of living tissue. This constitutes a new and easily recognized, and therefore practically important, difference between living and dead tissue."

The same journal states that a very ingenious, simple, easily-obtained and efficient apparatus for the treatment of the fracture of the lower jaw at the symphysis, is described by J. C. HABERSHAM, M.D., in the *Savannah Jour. of Med.*: "It consists of a silver plate to fit the teeth, covering them completely as low down as the gum; wires from the upper surface of this plate, bent down and over the under lip and under the jaw, and a padded splint, to be introduced between the under surface of the jaw and the wire. Any dentist can make one. It obviates the necessity of binding the jaws closely together; and the patient can converse and take 'spoon victuals without detriment to the seat of fracture.'"

It also presents the following abstract of nine cases of malignant pustule of the lower lip, reported by SAMUEL B. WELLS, M.D., of Middleburg, N. Y., in the *Boston Med. and Surg. Jour.*: "The first three cases were treated antiphlogistically, and proved fatal; the last six by free incision of the affected lip, introduction of a tent, and the local application of a cataplasm of yeast and Peruvian bark to the wound, with a view to the establishing of suppuration, and recovered in a few days."

A metallic alloy, consisting of 10 parts of copper, 10 parts of cast-iron, and 80 parts of zinc, is made (*Jour. Franklin Inst.*, etc.) by M. SOREL. It is called white brass, and may be turned, filed, and bored. It does not adhere to the moulds in casting, and retains its lustre for a very long time in moist air.

In an interesting letter to the *New Orleans Med. and Surg. Jour.* upon the medical museums and schools of Europe, and the manufacture of models for medical teaching, Prof. NOTT states that PAUL ZEILLER, a thorough anatomist and most ingenious modeler, uses a composition of wax, cotton, and lime, which gives great solidity to his models, and enables them to bear handling as freely as those made of the common *papier-maché*.

The *Scientific Amer.* says that a perfectly white, elastic, and insoluble substance, resembling horn, may be made by bleaching gutta-percha with chlorine. This is done by boiling gutta-percha in water containing some chlorine, or submitting it to the action of chlorine when in a dissolved state, which must be done in a close vessel.

A correspondent of the same paper writes that having doubted the statement that steel expands in hardening, he tried the experiment and found it correct. He had been under the impression that the hardening was in consequence of the contraction of the particles, and desires some one to make a microscopic examination and determine how they are arranged before and after contraction.

DR. BUJALSKY relates in the *Med. Zeit. Russlands*, (*Med. Times and Gaz.*) "a case of nævus occurring on the temple of a new-born infant, which in the course of eight months had attained a considerable size, and threatened to burst. The general opinion was that an operation was required, but he determined first to try the effect of penciling the entire surface of the nævus, as well as some lines beyond its basis, twice a day with creosote. At the end of six weeks the tumor had become somewhat paler, and more flaccid, and the creosote having been continued for three months, it entirely disappeared."

Under the title of "dental cream," M. VAUTIER, *Médecin-Dentiste*, of Paris, describes (*Gaz. des Hôp.* and *Med. Times and Gaz.*) "a composition which he says is of very great utility in facilitating cutting the teeth. It consists of gum, sugar, and honey, equal parts of each, with *q. s.* of lime-water. This is to be rubbed for several minutes three or four times a day, into the portion of the gum about to be penetrated. The gum becomes softened and thinned, and the tooth is much more easily cut." It is probable, however, that the gentle stimulation by friction has much to do with the result.

Braithwaite's Retrospect gives the following abstract of Mr. C. HUNTER's method of hypodermic injection: "In inserting the point of the syringe, the part must first be rendered tense, and then, if the movement be *quick and steady*, little or no pain is caused. The tissue injected is the loose reticular tissue beneath the panniculus adiposus, as less pain is caused than if the injection is inserted just beneath the skin, and absorption is more rapid. To produce a constitutional effect, localization is not necessary. A good site to select is the inner part of the arm, as the skin is here thin and easily perforated. The dose administered must never be more than half the ordinary stomachic dose for males, nor more than a third for females, the object being to produce a certain effect with as

small a quantity as possible. Men bear narcotics much better than women. The fluid used should be made of that strength that three or four turns of the piston shall be an ordinary injecting dose."

DR. GUENEAU DE MUSSY states in *Med. Times and Gaz. (Ibid.)* that "in cases of superficial neuralgia, especially facial, immediate and considerable relief will be generally obtained from the following local anodyne application: two parts of sp. of wine, or eau-de-cologne, one of chloroform, and one of tincture of aconite; the finger covered with a piece of lint, or soft, thick linen, is dipped in the mixture and rubbed on the part for a few minutes."

In an interesting paper upon the treatment of sinuses by the injection of iodine, (*Ibid.* from *Brit. Med. Jour.*,) DR. SKINNER alludes to those connected with the teeth as follows: "About a month ago I had a case, where I had good reason to suspect a carious condition of the root of a tooth, or rather of the alveolus; I requested the lady to see a dentist, but she declined. I injected the cloaca once with No. 3." This is made with two drachs. of iodine, q. s. of sulphuric ether to solve, and one fluid-ounce of spirit of wine. "The *fætid sanious* discharge ceased, and the mucous surface closed over the opening. I would here remark, that whether this was a case of genuine caries or not, considering the success obtained by M. Lugol in the use of iodine in this disease, it deserves a further trial. M. Lugol used baths and frictions of iodine, at the same time that he injected the fistulæ with his solution No. 2." This is composed of three grs. of iodine, four of iodide of potassium, and one pint of distilled water.

DR. HENRY N. FISHER, after relating (*N. Y. Med. Press*) a case of compound fracture of the lower jaw which terminated fatally, observes: "I heard Dr. Buck once remark that, in fracture of the lower jaw, his own experience has been that two fractures would occur quite as often if not oftener than a single one, and generally they bore the same relations to each other as in the above case. He accounted for it on the ground that where force enough is applied to the side of the jaw to fracture the ramus, it would also be likely to give way at the place of the canine tooth on the opposite side, from the fact that the root of this tooth is so long that the depth of its alveolar cavity detracts from the solid substance of the jaw, and makes it correspondingly weak at that point."

A writer in the *Westminster Review*, in commenting upon the power of the mind over the body, observes that he has been informed by a reliable authority, that a lady who requested her medical attendant to prescribe mercury for her, and who, believing that he had done so, although he actually prescribed bread-pills only, was really salivated by the power of faith.

Among the recent most important contributions to medical science are those of DR. E. B. SEQUARD's upon the nervous system. Some of which were presented in a course of lectures before the Royal College of Surgeons of England. From one of these, which appears in the *Savannah Jour. of Med.* for Jany., we make the following extracts: "The consensus between the various digestive organs affords the most positive demonstrations of reflex secretions. For instance, we find saliva secreted when the mucous membrane of the stomach is irritated by food. Dr. Gairdner speaks of a man, whose pharynx being divided, had a secretion

of from six to eight ounces of saliva during a meal of broth injected into the stomach. The reverse takes place also; the excitation of the nerves of taste produces an abundant reflex secretion of gastric juice, and also a flow of bile and pancreatic juice in the bowels. * * * Alterations in the cornea have been observed in a very curious case of neuralgia of the face, by M. Mazade. In a case of hyperæmia of the eye, which had resisted for a year many kinds of treatment, Dr. Emmerich, quoted by Schiff, states an immediate cure was obtained after the extraction of a tooth. Prof. Paul F. Eve, of Tennessee, U. S., suggested the idea of the extirpation of a carious tooth to Dr. H. F. Campbell, in a case of ophthalmia, and, the operation having been performed, the patient was at once cured. In a case recorded by Vallez, quoted by Schiff, there was strong hyperæmia of one eye, with abundant mucous secretion, followed by an ulceration of the cornea, in a man who had received a deep wound in the face, dividing the supra-maxillary nerve."

Among other facts cited in illustration of the production of paralysis and anæsthesia by reflex action are the following: "In children, the pretended essential paralysis, so well studied by Heine, Kennedy, Dr. West, Fliess, and Rilliet, is evidently analogous in its mode of production with the reflex paralysis of adults. This paralysis of children is almost always due to the irritation of the dental nerves or of the bowels. Marchal de Calvi relates four cases of neuralgia of the fifth pair of nerves which had produced a paralysis of the third pair. Notta has seen two cases of paralysis of the elevator palpebræ, due to neuralgia. Neucourt and M. Gola have each seen one case of facial paralysis cured at the same time that a neuralgia, which had caused it, was cured. Dr. Badin d'Hurtebise has seen a neuralgia of the supra-orbitalis nerve producing a paralysis of the third and sixth pairs of nerves, which paralysis ceased quickly after the cure of the neuralgia." In further illustration of the same we may mention that in the course of the discussion upon the paper of Dr. CARNOCHAN before noticed, DR. WORSTER observed that he had seen paralysis of the eye (amaurosis) from an affection of the nervous extremities caused by the irritation of a tooth. In one case he had "seen a patient suffer from severe toothache in the evening; in the morning the eye was found to be blind, and remained so for ten years. By a judicious course of tonic treatment, such as riding on horseback, exercise in the open air, the sight was finally restored."

It is stated by M. DEMARQUAY (*Lancet*) that glycerin may be advantageously used in deep abscesses connected with diseased bone. In such cases he combines glycerin with iodine, because the former is, alcohol excepted, the best solvent of the latter, and penetrates very powerfully, reaching to a great depth.

DR. A. TURNBULL recommends (*Med. Gaz. and Jour. of Mat. Med.*) the tincture of capsicum for the removal of odontalgia. He says: "The manner of using it for toothachè is by putting a drop or two on cotton, and applying it to the part affected; the relief will be immediate." The same claim is made for all this class of remedies, which frequently thus prove useful by their stimulant influence.

In the report of the proceedings of the Polytechnic Association of the American Institute (*Sci. American*, Feb. 11) it is stated that "MR. J. N. WYKOFF performed some experiments to illustrate his gold-amalgamating process. He poured a small quantity of gold sand (crushed quartz) on water in a tumbler; the gold and iron floated, while the lighter sand

immediately sank. Considerable stirring did not seem to shake down the gold. Mr. Wykoff said that he had seen the gold float for a month, although it was stirred up every day. Professor Hedrick said that chemists are well acquainted with such facts; gold precipitated by oxalic acid settles with great difficulty. To make floating precipitates sink, it is only necessary to apply heat."

In reply to a correspondent, the editor of the same paper gives the following general rule for making alloys, which, although familiar to some, may not be to all of our readers: "In melting several metals for obtaining a hard alloy, always fuse the most refractory first, then add the others, according to their melting points, such as the copper first, then the tin, in making bronze; or first the copper, then the zinc, in making brass. As zinc is volatile it should be melted as quickly as possible, because long exposure to heat will carry off some of the metal in the condition of gas."

M. GEORGES has presented to the Academy of Sciences, Paris, (*Lancet*,) an improved apparatus by which he applies, instantaneously, the galvanic cautery to the nerve of a tooth, and, as he says, destroys it painlessly.

In a notice of several dental publications in the *Brit. and For. Med.-Chir. Review*, a writer observes that "in no department of the profession has more rapid progress been made within the last quarter of a century than in that of dental surgery." After some general observations upon its history within that period, and present status in England, he adds that "perhaps no circumstance can more clearly testify to the increasing importance of the subject, than the addition within the last few years of a dental surgeon to the medical staff of most of the London hospitals. Twenty years ago there were not more than two of the hospitals at which the necessity of a dental surgeon was recognized; at the present day, so fully is this want admitted, there is no hospital, and scarcely a dispensary, without such an officer, while lecturers on dental surgery have been appointed in the majority of the medical schools."

BIBLIOGRAPHICAL.

The North American Medico-Chirurgical Review. We are pleased to see that the name of S. W. GROSS, M.D., appears upon the title-page of the last number of this standard publication as co-editor with his eminent father, DR. S. D. GROSS, and DR. T. G. RICHARDSON. We congratulate him upon this public recognition of his past labors in its behalf.

The Boston Medical and Surgical Journal. Edited by T. E. OLIVER, M.D., and CALVIN ELLIS, M.D. This very valuable weekly commenced its sixty-second volume with a new corps of editors, the former ones, DRs. MORLAND and MINOT, having retired at the close of the last one in consequence of more pressing demands upon their time. While, therefore, we congratulate these gentlemen upon the agreeable necessity which thus diverted them to a more lucrative duty, we tender to DRs. OLIVER and ELLIS a hearty welcome to their new field of labor.

The Cincinnati Medical and Surgical News. Edited by A. H. BAKER, M.D. This journal has been converted from a newspaper to the more convenient and professional form of a pamphlet. It is a monthly of thirty-two pages, at the low price of one dollar. It looks well, contains

much interesting matter, and promises to prove useful in disseminating medical knowledge. We, however, regret to see, in the salutatory remarks, the objectionable epithet of "old school" applied to the profession. We respectfully suggest that such terms should never be acknowledged, and much less employed by publications devoted to scientific medicine, as they only tend to lower the professional standard and continue false impressions respecting the real status and eminently-progressive character of medical science.

The Chicago Medical Examiner. Edited by N. S. DAVIS, M.D., and E. A. STEELE, M.D. We have received the second number of this periodical. It contains much matter of professional interest, prominent among which is a long article upon that vexed question, the possibility of the entire extirpation of the parotid gland, by TITUS DEVILLE, M.D., Prof. of Anat. in the Med. Dep. of Lind Un., who maintains that its form, position, and attachments are such as to render "its complete enucleation almost impossible." He also doubts the existence of such a disease as abscess of this gland, and considers "that the salivary glands are almost exempt from morbid structural changes, only one disease being spoken of by some pathologists, enchondroma, and which has its origin," he believes, "in the fibrous tissue, and not in the true structure of the gland." This journal is a monthly of sixty-four pages, devoted to the educational, scientific, and practical interests of the medical profession, and is well worthy of support. Terms, two dollars per annum, in advance. Address E. A. Steele, M.D., Chicago.

The Journal of Mental Science. Edited by JOHN CHAS. BUCKNILL, M.D. We have been favored with a copy of this valuable publication. It is published under the auspices of the Association of Medical Officers of Asylums and Hospitals for the Insane, England. It contains much matter of general as well as special interest upon psychological subjects, and, if space permitted, we should be pleased to enrich our own columns with some appropriate extracts from its pages.

Journal of Rational Medicine. Edited by C. H. CLEAVELAND, M.D., Cincinnati. We are informed by the prospectus that "this is a monthly medical periodical of thirty-two octavo pages, in no way the organ of any clique, school, or party, but simply the exponent of what is scientific and rational in medicine." As in reality rational and scientific medicine are synonymous, for they both must be in accordance with truth, it seems from the title of this serial and the introductory remarks in relation thereto, that its editor has renounced the exclusive views which he formerly entertained upon the subject of medical science, and which led him to associate himself with, and conduct a journal in favor of, the sect of self-styled eclectic. It is obvious, however, that neither this nor any other exclusive sect or party have a legitimate claim to this title, as in accordance with the signification of the word eclectic—which means to choose or select—every one who wishes to accurately adapt means to ends, must be governed by the true spirit of eclecticism. But as all such terms are so generally misapprehended and misapplied, they greatly retard progress, and hence are wisely discarded by those engaged in the culture of scientific medicine.

The present system of medical eclecticism had its origin in the manifest deficiencies and failures of the various other empirical systems which were formerly, and are still to some extent in vogue, and hence is a sort

of diverticulum or destroyer of these latter. Under the plea of taking the good from all sources, these so-called eclectics have tried to reconcile the discrepancies of these different and antagonistic systems, but have only succeeded in producing a hybrid with most of the objectionable features of its progenitors. This system of empirical eclecticism is thus composed of an admixture of incompatible ideas, the aggregated debris of the numerous other isms and pathies which have either died out or are now rapidly undergoing dissolution, and hence is but "a conglomerated mass of inconsistencies." But as the existence of all such empirical systems are necessarily more or less brief, it is safe to predict that it will in turn disappear and give place to more correct and enlarged views of medical science. Indeed, that it is now to some extent undergoing this last phase of its existence, is quite evident from the manifest tendency of some of its ablest supporters to leave their own and place themselves upon a more liberal and exalted platform. The present case is a striking instance in illustration of the truth of this statement. The different forms of empiricism thus appear, flourish for a time, and then disappear, while scientific medicine steadily progresses, and will continue to advance till the end of time.

It has been well said that men's minds are microscopic, telescopic, and kaleidoscopic, and it might have been added, but very rarely, or to a very limited extent, pantoscopic. In consequence of the necessarily limited capacity of finite intelligence, it is therefore so apt to misapprehend the nature of truth in both its abstract and concrete state, and hence acquire false ideas respecting its character and operations. This is not only the case with regard to its correct appreciation in one, but in all its branches, and in their separate as well as collective relations, and still more so in its universality as a whole. As truth is, therefore, an unit with innumerable branches, one of the primary steps in the acquisition of a knowledge of it or them is to obtain a clear conception of its nature, and in the case of the latter to determine their special scope as well as general relations to the whole. In no investigation is this more important than that which relates to the science of life. An indispensable prerequisite for this purpose is, therefore, a comprehensive and just definition of this science, and in order to aid in the solution of this great problem we present what appears to be at least an approximation to the true exposition of the subject. As we understand it, then, *the science of medicine comprises everything that relates to man's physical and psychical nature—his development, preservation, and perfection, consequently it includes all knowledge, all truth.*

Its scope is, therefore, of the most extensive character—it is, indeed, universal; its *objects*, the realization of the ideal of the living organism; while its *applications* are not limited to man alone, but extends to all living beings. In its more immediate relations to life, medical science is composed of two great branches, viz., hygiene and therapeutics. The object of the first is to preserve the normal status and insure perfect development of the vital organism; that of the second is to remove disease and restore health. It is obvious, however, that in all cases of derangement, both of these must be brought into operation, as the latter can only act in a subordinate capacity to the former. There are, of course, many other branches of medicine, a knowledge of which is essential to the just appreciation of those named, but of which it is not at present necessary to speak.

THE
DENTAL COSMOS.
NEW SERIES.

VOL. I.

PHILADELPHIA, APRIL, 1860.

No. 9.

ORIGINAL COMMUNICATIONS.

PRACTICAL HINTS.*

BY J. D. WHITE.

Keeping the mouth dry has, perhaps, caused the dentist as much anxiety as anything connected with his profession. We will not in this article attempt to discuss the merits of the subject of keeping a plug dry, under all circumstances, for the preservation of a tooth. We will confine ourselves to *how* we manage in our daily practice: correct theoretical conclusions do not always lie within the reach of practicability. In the first place, it is well to consider that the distress we give a patient by handling the mouth, and the more we excite pain by operating on a tooth, the more saliva will be secreted. In this way we not unfrequently double our trouble in regard to keeping the mouth dry, and we lash up an excitability of the glands, which requires a long time to subside. We always, in examining a mouth, approach it with the greatest care, and endeavor to avoid unduly straining the mouth or the jaws, but train them into flexibility by slow degrees. Hence, we do not employ the usual incumbering methods resorted to by the majority of operators. We were operating, a short time since, for a distinguished officer of the United States army, over sixty years of age, who remarked that his mouth was large enough, for the first time in his life, to be operated on. We operated, a few days ago, for young man, twenty years of age, who could, at will, throw the condyles of his jaw in and out of the glenoid cavities, making quite a noise, a feat which he could not do until after he had his teeth operated on. He said that his mouth had been forced widely open and filled with large napkins, and kept in that condition for over an hour, for

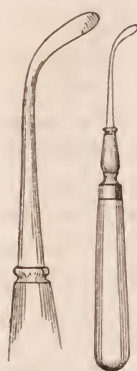
* In the last number of the DENTAL COSMOS, we meant to conclude our articles on Practical Hints with only the treatment of the nerve and fang filling. We intend to continue Practical Hints as time and space will allow.

the packing of a single plug in the second molar of the lower jaw. He suffered so much pain at the time, and for so long afterwards, and has this unpleasant condition of his jaws left, that he would not submit to it again for all his teeth.

We very seldom use the finger to open the mouth, to elevate the lips or force them back, to get to the posterior teeth. We use an instrument with dry cotton-wool wrapped around its bulbous portion. This makes a kind of cushion, which is easy to the lips and cheeks or tongue.

Fig. 1 is a drawing of the instrument. With it the integuments can be carried away from contact with the back teeth, as the cotton will stick to the wet membranes as long as it is comparatively dry, and when the cotton gets very wet it can be slipped off and on, and another wrapping made.

FIG. 1.



It is very simple. We take a lock of cotton, about as large as the end of the thumb, dip the instrument into water, lay it in the cotton, and with a few turns of the instrument, with the right hand holding the cotton between the thumb and fingers of the left hand, the process of wrapping is readily accomplished. With this instrument we make all our examinations of the mouth. Of course we use it in our left hand, and our probe in the right. We use small napkins, about three inches long and about six inches wide, placed over the lips, or in

the corners of the mouth, to prevent chafing the parts. When one side of a tooth only is necessary to be guarded, this instrument alone is sufficient, but where the tongue and cheeks both are in our way, while plugging or examining teeth, we use an instrument of recent invention, with two prongs, which is represented by *Fig. 2*.

We use two sizes; the larger for adults and the smaller for children or small mouths. This forked instrument is principally used in examining and plugging the back teeth of the lower jaw, the bicuspid and molars; it does away with the usual tongue holders. It can be used with facility, and removed at pleasure; it completely answers the purpose of holding the small napkins immediately around or about the tooth which we are plugging, without incumbering the mouth, and is a great economy in space.

FIG. 2.



[Entered, according to Act of Congress, in the year 1859, by JONES & WHITE, in the Clerk's Office of the District Court of the United States for the Eastern District of Pennsylvania.]

[Translated from the French, for the DENTAL COSMOS.]

DENTAL ANOMALIES AND THEIR INFLUENCE UPON THE PRODUCTION OF DISEASES OF THE MAXILLARY BONES.

BY AM. FORGET, M.D., C.L.D., ETC.

Memoir crowned by the Academy of Sciences at its meeting of 14th March, 1859.

(CONCLUDED.)

OTHER analogous facts argue still further in favor of the etiology, whence are derived, in my opinion, these different pathological states.

An anatomical demonstration of the first of these facts will be found in this work. (Plate III. fig. 1.). This fact was published in my inaugural thesis, (*loc. cit.*, Thèse inaugurale,) and I will therefore reproduce only such details as especially refer to the subject of the present essay.

OBSERVATION 10.—Osseous cyst of the body of the jaw; anomaly of development of the wisdom tooth revealed by anatomic examination.

Madame D., endowed with good health and of a strong constitution, entered the Hôpital de la Pitié in the month of April, 1838. This woman exhibited a very considerable swelling of the right half of the jaw; it resembled in size and shape a large hen-egg. The tumor was bounded in front by the second incisor, and behind by the coronoid apophysis.

As to the origin and progress of the disease, Madame D. stated that ten years previously, and shortly after having her teeth cleaned, which she had always had in a bad condition, a small tumor had been developed in juxtaposition with the large molars. This tumor had increased progressively, and she had experienced several returns of very severe pain, which she attributed to the decay of the teeth, three of which had successively fallen.

The extent of the disease induced Lisfranc to make a resection of the half of the jaw. The operation was followed by a prompt cure, and Madame D. quitted the hospital six weeks afterwards.

The examination of the anatomic section shows a considerable induration of the soft perimaxillary parts, and under them a development of the body of the jaw, in the centre of which was a vast cavity filled with a sanious and purulent liquid. This cavity was formed by the two tables of the maxillary, which were very thin and reduced at many points to the mere thickness of the periosteum. The bottom, formed by the base of the bone, which was very much widened, presented in projection the crown of the wisdom tooth, protuberant at the interior of the cyst. Thrust horizontally against the base of the coronoid apophysis, the tooth is

firmly inclosed in the calcareous tissue. (Plate III. fig. 1.) The anomalous position and regular development exhibited by the tooth in this vicious situation can leave no doubt as to the part that it had played in the production and successive evolution of the disease of the bone. An analytical examination of the anatomic section leads us to the conclusion that the wisdom tooth could not become enlarged without exerting a continual pressure upon the neighboring teeth, and that this pressure was the cause of the prolonged suffering endured by the patient, as well as of the inflammation of the gums, and the decay, loosening, and spontaneous fall of most of the other teeth.

Two other facts, not less interesting than this, have been communicated to me by my honorable compeers, MM. Nélaton and Maisonneuve. Differing from each other as to the nature of the osseous lesion which necessitated the intervention of art, they agree as to the original morbid disposition which appears to have been the point of departure of the lesion.

OBSERVATION 11.—Cyst of the ramus of the inferior maxillary, coincident with the presence of a molar tooth in the cavity.

The sufferer was a woman, about thirty years of age; her cheek had become slowly but progressively tumefied. This tumefaction was accompanied with dull pain, and was the result of the anomalous development of the ramus, which finally took the shape of a quite regular half sphere.

This increase in the inferior maxillary especially affected the external table, which was raised into a hemisphere, while the internal table preserved its regular direction, and M. Nélaton wisely decided to attack the tumor with the bistoury and the gouge. In pursuance of this decision, the soft exterior parts were properly cut and the external wall of the cyst was circularly resected. This once raised, he could explore the cavity, and he found that a tooth had caused a projection at the most dependent part. (Plate II. fig. 4, *l*, *b*.) This tooth, partly in relief in the cyst and partly inclosed in the calcareous tissue, was removed after several attempts. The operation was a complete success. The woman subjected to it has not in ten years had a return of the affection, which, being located in a part of the jaw in juxtaposition with the tooth which was removed from its normal position, owed its existence to the presence of that anomaly.

The preceding observations are, it seems to me, of a nature to throw light upon the origin of certain cysts that are frequently met in the thick part of the jaws, the formation of which has been connected by recent researches with the natural cavities of the organism—that is to say, with the anomalous growth of the dental follicles themselves.

One of the grounds of this opinion has already been stated to be the seat of the tumors which invariably appear in the continuity of the alveolar arch, and another is the age of the patients, which most frequently corresponds to one of the two phases of life characterized by the double

work of dentition. This opinion is founded still more upon the results of anatomic examination, which, with the aid of the microscope, has often proved the existence of an epithelium in the interior of the cysts. This epithelium is evident, especially in the interior of those where the roots of several teeth protrude. (Vide *Bulletin de la Soc. anat.*, vol. xxii. p. 506. Obs. by Dr. Dénucé.) Does not the presence of this epithelium indicate that a physiological tissue, serving as a case for a normal cavity, has been obliged to conspire to the development of these cystic tumors and to serve in some way as a base to their definitive constitution?

As I am a partisan, pathogenically, of the doctrine of naturism, (*naturisme*), which considers the most of these morbid anatomic productions to be merely an infraction of the primitive organic type, I willingly accept this interpretation, the justice of which is demonstrated to me by the existence of alveolar cysts that are in direct communication with the dental follicle.

The last observation that remains to be mentioned offers an additional support to my view of this subject. This observation is complex; it combines two distinct pathological states. One of these, the primitive or original, is a dental cyst with an epithelial casing; the other, the secondary or consecutive, is a rarefying osteite of half of the body of the inferior maxillary, which necessitated the disarticulation of that bone.

OBSERVATION 12.—Dental cyst; rarefying osteite of half of the inferior maxillary.

A young man, twenty-seven years of age, consulted many of the surgeons of Paris for a swelling of the right half of the body of the lower jaw, which was tripled in size. He was almost incessantly tormented with a dental neuralgia which had commenced ten years previously, and the patient said that at about the same period he had remarked a slight and circumscribed tumefaction of the jaw beneath the molar teeth—it existed then as a kind of node that remained stationary for a long time. The progress of the tumor had become appreciable only three years before, and its evolution was then marked by continual pain, which was, nevertheless, moderate and not lancinating. At the time mentioned, the body of the jaw had become deformed throughout the right half, representing a quite irregular ovoid with some points in relief; the gums were red, thin, and tumefied, and bled very easily. The teeth that were on these gums were most of them altered from their natural direction, and more or less movable. The submaxillary region showed some congested lymphatic ganglions.

My colleague, M. Maisonneuve, was called to attend this young man. He considered it necessary to disarticulate the half of the jaw. He performed the operation in the course of the month of April, 1857, and it was, eight days after, followed by the death of the patient, which was caused by a gangrenous inflammation of the wound and an abundant secondary hæmorrhage.

What was in this case the nature of the malady, which, appreciated differently during the life of the subject, was successively considered to be a cyst, a cancer, and finally, an osteite?

The examination of the anatomic section answered this question, and demonstrated that it was a matter of complex lesion. It also revealed, first and foremost, the existence, in the centre of the tumor, of an excavation containing a large molar, directed horizontally; the crown was in front, and it had acquired its regular development in this vicious position. (Plate III. figs. 2 and 3.) This tooth was surrounded by a reddish, fungous production, which appeared under the microscope to be formed of a fibrous or fibro-plastic tissue, with an epithelial covering—an arrangement analogous to that which I have already pointed out, and proving that primitively it was a disease of a dental follicle. This was, then, the point of departure of a secondary lesion, which extended progressively over the whole of one side of the jaw, and characterized, as often happens with rarefying osteites, the enlargement of the interstices of the areolar osseous tissue, and the hypertrophical development of the organic substance in the interior of these interstices. The latter, by its predominance over the calcareous element, in the centre of which it formed a sort of myeloplastic production, explains the extreme fragility of the bone, which yielded under a very slight pressure.

The lymphatic ganglions, raised with the tumor to which they were attached, and, like it, examined by M. Broca, exhibited the characteristics of a simple inflammation of the glands. (*Bullet. de la Soc. de chir.*, vol. vii.)

I am not aware that there exists in the science any fact bearing even a remote analogy to the one just mentioned. It will be remarked, without doubt, that it contains in itself an anatomic demonstration sufficient to justify the double point of view in which I have considered the lesion of the maxillary bone, in the case of which it is the question. By referring the lesion to two distinct periods, the first, corresponding to the original inclusion of the tooth, and the second, to the morbid development of the bone—it is naturally divided into two pathological states, of which the latter was certainly the most serious, and which necessitated a considerable mutilation of the face. This last condition could have been averted if the dental encystment had been recognized and efficiently assailed at its origin by means of a rigorous diagnosis.

R E S U M É.

DIAGNOSIS—TREATMENT.

THE diagnosis of the diseases of the maxillary bones which we are about to consider, and which have been generally comprised under the too vague denomination of osteo-sarcoma, has been long undetermined, confused, and liable to numerous errors.

Pathological anatomy, by a thorough study of the histological elements of these diseases, has recently given us a more exact idea of their nature; and, when combined with clinical instruction, permits us to distinguish between them, and to conform the treatment to the anatomical varieties that characterize them. This is the aim that I have proposed to myself in this work, and I will have attained it if, as I hope, the etiological researches contained in it have thrown light upon a question of pathology until now very obscure, and opened a way for a more severe therapeutical induction.

Thus, in recapitulating the observations recorded in this treatise from a symptomatic point of view, we find one constant and primordial fact that serves to point out precisely the very origin of the malady; it is the absence of one or several teeth which have not taken position in the alveolar arch at any epoch. This principal circumstance is usually accompanied by very obstinate neuralgias, that are caused by the displacement and elongation of the dental nerves which are deflected from their true direction. This same circumstance causes, more or less immediately, the formation of an intramaxillary cyst, which appears sooner or later on the exterior under the more or less distinct form of an osseous tumor.

When an osseous tumor appears having such antecedents, the surgeon is the more authorized in acting against it, because, in thus assailing the evil at its origin, his intervention can prevent the ulterior consequences, which, although varying in extent and gravity, have nevertheless one common characteristic—the development of the bone which is the seat of the tumor. The hyperostosis thus produced may be unilateral—that is, confined to one of the faces of the bone; or it may be juxta-alveolar, or circumscribed to a single alveolus; or lastly, it may be circumferential, in which case it occupies the whole of the osseous body.

The osteite, which, as we have seen, is the direct cause of it, is either condensing or rarefying.

In the former case, it is characterized by the peripheral accumulation of osseous elements in excess; this arrangement was particularly evident at the angle of the lower jaw and at the base of the coronoid apophysis in the subject of the ninth observation. (Plate VI. fig. 2.)

In the second case, the osteite causes a very abundant vascularization of the osseous tissue, the vitality of which is sensibly increased. The excessive nutritive movement which results is marked by the disaggregation of the calcareous elements and the hypertrophy of the organic substance, which in some cases even forms a genuine interlamellary myeloplasm, an arrangement that causes the jaw to lose its consistence, and makes it very fragile.

These two pathological states may end in suppuration, and cause the formation of numerous encysted abscesses. It is these that we have seen coexisting, especially with the anomalies in the position of the teeth.

The third morbid form is met more particularly accompanied with the anomalies of nutrition—that is to say, with those where the dental osteide constitutes a voluminous tumor. This form is explained by a sort of partial or general diduction of the two tables of the bone, which, by the slow reabsorption of its organized elements, is finally transformed into a cavity, the walls of which are formed of a bed of compact tissue that is often very thin. On the borders of these encysted products, it is not unusual to find the bone exhibiting in its continuity all the characteristics of the condensing osteite.

It is to be remarked that in all the observations the disease was developed very slowly. Stationary for a long period, the disease remained very distinctly circumscribed to the jaw, and did not at any phase of its evolution exert upon the constitution of the patient that deleterious influence which belongs to the accidental productions of a malignant nature. Finally, the most minute anatomical examination has in no case discovered the presence of heteromorphic elements of the nature of those that characterize cancerous affections.

This last circumstance, though not more favorable to the prognosis, is not less interesting in regard to the treatment. For if the intervention of a surgeon cannot be too radical in an instance of cancer, it is certain, on the contrary, that more caution and moderation are necessary when it is a question of a lesion, which is essentially local and of a benignant nature, and allows the surgical operation to be restricted to the precise limits of the lesion, without it being necessary to provide against an improbable repetition, by encroaching upon the osseous tissues that border on it, and thus subjecting the patient to a mutilation which could not be justified.

Thus we have shown an instance where the disease was confined exclusively to the alveolar tissue, while the base of the jaw, if not perfectly intact, was at least but slightly affected. And the anatomical researches which I have presented demonstrate the possibility of preserving the continuity of the bone in most instances, and make it a duty of the surgeon not to have recourse first and foremost to the partial amputation of the jaw.

It would be wrong, however, to infer from this general remark that there can be practically a rule of uniform conduct for the remedy of the various pathological conditions described in this treatise. To draw up a series of precepts that are absolute and necessarily obligatory, when experience presents us with facts so different in form, aspect, and importance, although springing from a common origin, would have the effect of inclining us to disregard those particular indications which arise from individual differences, and are observed by nature even in the secondary disorders which occur not only in the maxillary bone, the seat of the evil, but also in the surrounding soft parts.

Thus, there are some cases, like that mentioned in the third observation of this treatise, which require only a simple extraction of the foreign body in order to make the cure complete; while there are others, on the contrary, that necessitate a much more serious operation.

In the latter, moreover, whatever they may be, the surgeon should take into consideration an important indication, for which we are indebted to the admirable researches of M. Flourens upon the regeneration of the osseous tissue, and preserve as much as possible the periosteum in the wound, by a sort of preliminary decortication of the jaw which he is compelled to remove.

In addition to this, and I hasten to make the acknowledgment, the way to treat such tumors is not always clearly indicated. However attentive the clinical examination may be, it does not always succeed in dissipating the incertitudes of the diagnosis, which is often rendered very obscure by the origin and seat of these morbid productions at the centre of the osseous tissue which envelops them on all sides. But the doubt, in such a case, militates in favor of that prudent and conservative surgery to which the artist should always hold his acts accountable.

HISTORY OF A LATERAL.

BY H. N. WADSWORTH.

MR. L., a young gentleman twenty-one years of age, nervo-bilious temperament, introduced by a lady patient on the 3d January, 1860, desired my opinion of a front tooth that had given him trouble. Mr. L.'s physical and mental developments were such as to attract my immediate attention; and his manly and lucid description of his symptoms enlisted a deep interest in his case, independently of the peculiar circumstances connected therewith.

About one year previous, had violent pain in the second left superior bicuspis; went to a dentist in New Jersey, and requested him to "extract the tooth;" he refused; "did not think it necessary; 'twould probably wear off;" waited a while, (one or two days,) when the pain becoming too severe to be endured, he returned to the dentist's office and *insisted* upon its removal, as he "could and would stand the pain no longer." On examination, they found "a bony growth adhering to the root;" (exostosis;) "the jaw had swollen, and there was a small sack at the point of the root." "The extraction of the tooth immediately relieved the pain." About six months after, the front tooth (left superior lateral incisor) "became very sensitive to hot and cold substances; then painful and sore; and, finally, swelled and broke." The dentist to whom he had applied refused to extract it; (I do not remember at what stage of the symptoms he applied to him;) very much discouraged, he had let it run on, giving him great pain and trouble. The present winter he had avoided

the trouble partially, by keeping in the house as much as possible; but being in Washington on a visit, and desirous of seeing our "lions," he had exposed himself, and a renewal of the symptoms, attended with violent pain, the night previous to calling upon me, had determined him to be guided by his friends, and "visit" their dentist and get his opinion.

Diagnosis.—Found the tooth entirely free from caries; upon sounding, could detect little or no soreness, but through the enamel near the neck, on the palatine side, and on a direct line with the pulp, could be traced a faint and dark blue tinge imparted by the suppurating process. Faint though it were as the glimmering twilight, yet when coupled with the symptoms as described by my patient, and with an inflamed expression of the gum on the labial side, on a line with the root, (although the fistula had closed,) I had no hesitation in stating that the pulp was dead, and an immediate relief to his symptoms would follow upon its removal. My patient stated he had come with the expectation of having the tooth extracted; and as he had suffered so much he would not shrink from it, but rather preferred that course. This I positively declined doing; and on representing how much better, in every respect, it would be to adopt my plan, he consented, and I made an engagement for 3 P.M., same day.

At 3 P.M., tooth "very sore and painful;" drilled through the slight indentation on palatine side, near the gum, directly to the pulp; a noxious gas followed by a discharge of pus; my gold beards brought out a skeleton of pulp barely adhering together; then followed packing long threads of cotton to the extremity of the root, until every vestige of pus had been removed; while the pulp canal was still dry, carried a gold beard, armed with creosote, to the apex, worked it around for a moment, and removed it; (I do not approve of leaving any foreign body in a pulp canal, not even cotton and creosote, when waiting for a root to get in a proper position to fill; but rather prefer leaving it entirely open, with the exception of a small bit of cotton pressed into the crown cavity, giving my patient directions to remove it on the slightest symptoms of uneasiness;) packed a little cotton lightly into the crown cavity, and told my patient to call at 3 P.M., on the 6th.

6th inst., 3 P.M.—On passing a beard into pulp canal, found nothing tangible; cotton strings packed in gave slight tinge of pus; thoroughly dried as before; swabbed again with creosote, being always very careful to have no suction from swab to irritate the periosteum; filled crown with gutta-percha, with directions how and when to remove in case of any uneasy symptoms. The tooth now in a good condition to fill, all irritation subsided, no discharge of pus, and, if two or three days develop no unfavorable symptoms, shall fill. Appointed 3 P.M., January 9th.

January 9th, 3 P.M.—Patient called, tooth perfectly well; no pus; filled pulp canal and crown, and dismissed him cured.

Remarks.—I have reported this case minutely, because it is one of the

few met with in my practice where no external cause could be found to give rise to the destruction of the pulp; no blow, no violence of any kind could be remembered. Did this tooth sympathize so strongly with the death of the second bicuspid as to succumb and follow its fellow's fate? I should answer no. Did the death and suppuration ensuing from the death of the periosteum of the second bicuspid extend itself so as to implicate the organs of our friend the lateral? No; else it would have implicated the intervening first bicuspid and the adjoining cuspid. Was death in this case owing to exostosis, as appeared to have been the case in the second bicuspid? If we answer no to this question also, we lose the most plausible theory for accounting for the phenomena; and yet I can hardly believe the symptoms indicated exostosis, or would have yielded so readily did it exist in this case.

This brings to mind the fact of having extracted, some several years since, eight teeth for a lady, (preparatory to inserting artificial teeth,) nearly all of which had had their pulps removed, and nearly or quite all of which had exostosis—so much so as to give me unusual labor to extract them. They were all well and skillfully operated upon by one of our most skillful dentists. The lady made no complaint of their condition, except that they had lost their color—whether the exostosis was developed before or after the operation I am unable to say, yet the irritation necessarily produced under all circumstances by the application of caustics must reflect severely upon the periosteum; this irritation being followed by double duty in giving sustenance to the tooth, after the loss of its pulp, would be very apt to cause this delicate membrane to throw out unhealthy and unnatural deposits under this state of excitement which it rarely does under any other. And here we have a good and logical cause for the disease. In my own practice, I have never seen a clear case of exostosis that could not be traced to a certain exciting cause.

WASHINGTON, D. C.

FUNGOID GROWTH OF THE GUMS AND JAW.

BY W. D. HOLBROOK.

ALLOW me, through the DENTAL COSMOS, to make a statement of facts in relation to a fungus of the mouth. *Case No. 1.*—Some thirty years ago, my mother was attacked with a fungus, which made its appearance on the lower jaw, directly back of the central incisors. It rose up, and, after some five weeks, protruded through the surface, and spread quite rapidly, having a small stem or neck. It was taken off many times by the use of a ligature made tight around it, and as often made its appearance again, at each time in a more malignant manner.

At last the best medical aid in St. Lawrence County, N. Y., (for this was the vicinity where we then lived,) was called, and treated under their

directions. It had, by this time, made its appearance around the necks of some three or four of the incisors. They were removed, lunar caustic applied, in connection with other remedies, but all to no purpose. As a last resort, the flesh was cleaned from outside the jaw-bone, from opposite the first bicuspid, on each side, down to the lower edge of the bone, the bone thoroughly scraped, and various remedies applied; but still it grew and spread. Finally, my mother, being a woman of strong nerve and resolute will, resolved to be her own surgeon; and at it, with knife in hand, she went. She cleaned it off in chunks, scraped the bone, tore it out as best she could, from time to time, almost daily, and yet, after nearly three years of perplexing anxiety, she seemed to be doomed to still more serious trouble from it.

One day, while on the way to a neighbor's house, she saw in the road a piece of charcoal; and, as by instinct, the thought struck her that in that little coal was the cure for her jaw. She took it home, pulverized it, placed it upon the seat of her trouble; day after day she applied the coal for a few weeks, and the fungus disappeared. She lived some seven or eight years after; but it appeared no more.

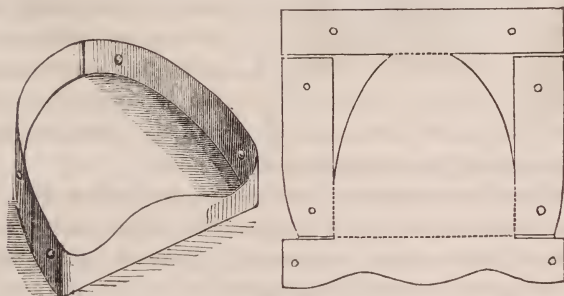
Case No. 2.—Some sixteen years since, the writer had, from the centre of an upper molar root, a fungus, which grew quite fast; was cut off many times, but no cure. At length the root was removed from its cavity; it still grew; caustic was applied, but to no purpose. It was often cut or dug out, until after some two years had expired with no good result, when it was seared with a hot iron and cured. The use of the coal had slipped my mind.

Case No. 3.—Some two years ago, another tumor of similar character appeared opposite the second bicuspid on the lower jaw, near the edge of the gum. I removed it with a ligature, but it again appeared in a larger form. I had informed a sister, at the East, of the fact. It came to her, or, rather, she called to mind about the case of our mother. She wrote me about it, and wondered if I had tried it, or forgotten about it. I then had it cut off, applied the charcoal for some three weeks, and it was cured. Some eighteen months have since elapsed, and it is well.

ZINC DIES.

My way of making a zinc die, for swedging plates. I find there are many dentists who have abandoned the use of zinc altogether, on account of its shrinkage, and the uncertainty of obtaining a perfect cast. I will begin with my impression cup, which is of my own pattern and make, and any dentist can make them for himself. It is of one piece of tin, and wants no soldering, consequently will not melt on pouring in the zinc; I send you a pattern, which will describe it. It being open around the front edge, it allows the water to pass out of the plaster on being pressed firmly

into the roof of the mouth, and thus, it will set much quicker than in a tight cup. For an impression for a full set, take well calcined plaster, put in a little salt, say a lump the size of a large pea, mix pretty thin, and place it in the mouth; after it has set, and the impression withdrawn, lay it on a flat surface, say tin, sheet-iron, or wood; then build on the back end of the cup, say one inch of plaster of Paris, also raise the impression with plaster across where the back edge of the plate will come, (which saves bending up the plate at the back end,) then scrape a little from the roof farther forward, trim the outer edge to the tin, and dry it thoroughly; now take a piece of sheet-iron, say nine or ten inches long by two and three-fourths broad, bend it around the impression, place the impression

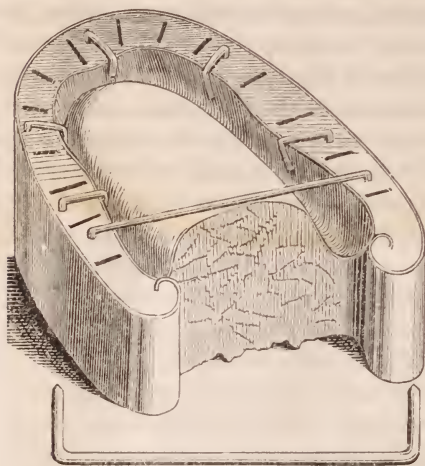


about the centre, take another piece of sheet-iron three and a half by four inches, or four inches square, place it on the end facing the impression, imbed it in the sand deeply, and pour in the zinc. By turning in the zinc at the heel or back end of the impression, and having zinc enough to fill it up an inch above the impression, you get the shrinkage above or back of the heel of the impression. When the zinc is cooling, stir it carefully with a small piece of iron or wood, and you have a solid cast with no shrinkage. Now take off the impression, place the cast in the sheet-iron as before, also in the sand with the square iron on the opposite end, and turn in your lead. It will not adhere to the zinc unless very much too hot.

TO SOLDER WITHOUT WARPING THE PLATE.

WHEN the teeth are fitted to the plate, place them upon their cutting edges; then place around it a piece of tin three-quarters of an inch wide, and long enough to reach back past the heel a half inch, and place it less than one-fourth of an inch from the teeth; pour in plaster alone around the outside of the teeth; let it run over the edge of the plate; put on about five brackets across the edge of the plate in the plaster; put also a small wire, with the ends bent at right angles, across the back end of the plate, the ends in the plaster on each side. When the plaster

is partly set, with a narrow instrument remove all the plaster from the top of the plate down to the edge of the jaw, or opposite where the solder comes; thus you have nothing but the plate to heat; now take a flat



instrument, one-eighth of an inch wide, and pierce or insert it down through the plaster, before it is set firmly, every quarter of an inch or so, clear around, next or between the teeth and tin, thus making it easy to crack as the plate expands, and, when the tin is removed, it will fall off in small pieces. The wire across the back end will bring the plate back to its former position. Since adopting the above method, I have no trouble in warping plates.

Here is a view of the upper side of a plate ready to solder, except the middle circle, which represents the edge of the plate covered with plaster. The plaster extends to the inner circle. It is all held together, when heated up, by the brackets and cross wire.

WAUKESHA, WIS.

ADVANTAGES OF A FULL SUPPLY OF DENTAL MATERIAL.

BY J. D. WINGATE.

I WOULD recommend all dentists, and particularly those distant from a dental depot, to always keep on hand an abundance of dental material. I have made this such a prominent feature, as to attract the attention of visitors, one of whom, a practitioner of dentistry, lately observed to the writer: "You have more teeth on hand than any five dentists I ever visited." The advantages resulting from this course are very apparent, for just so quick as the stock runs out, the practice suspends itself. Few things pay a better interest, especially when time saved is considered worth anything, than a reasonably large and well-selected stock of teeth. I am acquainted with a dentist, of moderate abilities as a workman, who inserts a great many artificial teeth, chiefly because he carries with him from three to five hundred dollars' worth of teeth, to show persons and induce them to select therefrom, and thus to become his patients. Much time in grinding, as well as vexation, both to the operator and patient, especially if distant from the office, are also often saved by having teeth the right size and shade. Frequently patients come here over a rough road and in pri-

vate conveyances a distance of thirty miles or more, expecting to wait for their work. How pleasant then, as well as profitable, it is to be ready to take the impression, swage up the plate, articulate and put in the articulating instrument, (the one in use here shall be described presently,) having your teeth at hand, with the aid of the patient to select a set, and arrange them upon the plate with a cement prepared as follows: Wax six parts, rosin three parts, and gum dammara one part, by weight; melt; mix, pour into cold water, and work into sticks like candy. By means of this, in a very short space of time a set of teeth may be readily attached to the plate or plates, so as to antagonize perfectly, and be tried in the mouth, to determine the precise length, breadth, and shade. I usually try several sets for the gratification of the patient—it is no more than justice to him, and leaves but little room for fault-finding afterwards. For full sets, the quickest way to articulate is to put both plates into the mouth and lay a roll of softened wax on the lower plate, direct the patient to close his mouth, but do not tell him to “close naturally,” as he is generally obliging, and overdoes the thing; after getting a bad “bite,” it is hard to get a correct one. The length and fullness of the case can most quickly be ascertained with the teeth-antagonizing instrument and cement. Where alcohol is used, the cheapest method of heating the cement is to have a small lamp, the wick tube small enough to admit only a No. 10 wire to pass through. Such a lamp will consume only about four ounces of alcohol a day.

The following is a description of an antagonizing instrument, the cost of which will not exceed three cents and ten minutes' labor: Procure pieces of No. 11 wire, the long ones thirteen, and the short ones six inches in length, then with a pair of strong flat pliers bend in the same direction and at right angles, one and a fourth inches from the ends, the longer pieces. Next bend the wire in the centre so as to form a semi-circle whose diameter is about two and a half inches; bend in the direction so as to make the ends meet. Then we have an oblong, square at one end; next a strip of tin plate is wanted, about an inch in width, and exactly long enough to fit between the sides, along the square end. This bent over the end and pinched closely around the ends of the wire will form a hinge, one edge of which should extend one-fourth inch over the other, to solder. The short wire may now be bent to represent an upper jaw, an oval also, the ends flattened and bent in slightly, dipped in fluid chloride of zinc, and soldered on the hinge with soft solder. It is not necessary for the upper wire to be long, as the plate extends back to meet it, and the plaster counter-cast may be taken off the instrument without breaking. Next lay the under or long part in a flat surface, it extending over it a little more than half its length, and bend both sides down to an angle of about forty-five degrees, to represent the bend in the inferior maxilla, and it is ready for use. Dr. T. W. Evans, of Paris, invented an instrument

similar to this, with an additional screw and rod, which I deem unnecessary, as the length of the teeth may be adjusted by the teeth themselves. The method of using it is explained in "Harris's Principles and Practice of Dental Surgery."

BELLEFONTE, PA.

PLASTER IMPRESSIONS.

BY J. B. M'CLURE.

FOR eight or nine years I have taken the impression of the mouth with plaster of Paris. It matters not what number of teeth I wish to insert, one, two, three, or a full set. Where there is much difficulty in taking the impression of the lower gum with plaster, I take the impression first with beeswax, then place a thin sheet of gutta-percha immediately out of hot water on the wax impression, place it back in the mouth, hold it there one or two minutes, which is sufficient time for the gutta-percha to harden. This mode affords me a more perfect impression of the lower gum than any other way I have tried. I have not used bands or clasps to secure a plate with teeth in the mouth since 1855. I use suction or vacuum plates entirely for the upper gum. Elegance of fit for the lower plate assisted by its own specific gravity.

Seeing some notice in the DENTAL COSMOS, of the expansion of plaster of Paris, has led me to give you some of my experience and observation in the use of plaster. Some two years ago, when I was *foolish* enough to put up dental pieces on the *cheoplastic base*, my attention was called to the expansion of plaster in one particular instance, where I used plaster alone and left out the sand. The consequence was, the plate was too large, or too loose a fit. It would not do. Since that time I use very fine sand and plaster to take the impression, as well as to make the cast. Proceeding in the usual way, working the plate up accurately to the cast, a *suction* fit is certain in any kind of a mouth, whether the arch be flat or deep. I use as much sand as it will bear or that the plaster will sustain: two parts, three parts, and sometimes more. The plaster should be the very best, that which will set well.

About six weeks ago I put up a full upper set of teeth for a lady, Mrs. F., where the arch was very flat and the alveolar ridge quite broad. The plate held with such force that she was obliged to take them out at times. She called on me to know what she should do. I requested her to suck them up lightly, not to exhaust the atmosphere or air so perfectly, which has overcome the difficulty. She now wears them with the utmost comfort and satisfaction. I use heavy gold plate, alloyed in the proportion of ten cents silver to ten dollars gold.

CARROLLTON, CARROLL Co., Miss.

PLASTIC FILLINGS.

BY H. L. RUNKLE.

LATELY there have been introduced to the dental profession a number of preparations styled osteoplastic, bone, and quartz fillings.

The composition of these new materials is similar; all of them are formed from soluble glass, mixed with a powder, the base of which is either the oxide of zinc, in a freshly prepared state, or the precipitated sulphate of baryta.

My attention was first called to the soluble glass, compounded with powders, in 1853, by an eminent chemist of Berlin, Prussia. The process by which he obtained it, was fusing thoroughly fifteen parts quartz, ten of potash, and one of charcoal. In this state it was a hard and clear substance. It was then divided into minute particles, and dissolved by steam, forming a clear and syrupy liquid. With this liquid he would unite a powder, the base of which was the oxide of zinc or precipitated sulphate of baryta, and from this plastic material would, in a short time, produce a substance as hard as marble. He sometimes employed lime, in connection with the soluble glass, which readily consolidated, having a tendency to form silicate of lime.

With these preparations, in various forms, I experimented in numerous cases, to test their durability as fillings for teeth. The result was, that in some mouths the fillings would wash away in a few months. When this was not the case, and the filling remained and presented a solid appearance, upon its removal, the walls of the cavity would be found to be in a chalky and brittle condition, very much injured, and in such a manner as to be difficult to remedy. This was invariably the case when they remained in from eighteen to twenty months.

I have examined three of these new preparations, said to be recent discoveries, and find them in substance the same, with the exception that they are more objectionable from the fact that they are not chemically compounded. I, therefore, expect their use will be of short duration among the scientific members of the profession.

CULPEPPER, VA.

THE POSTERIOR BICUSPIDS—WHERE ARE THEY?

BY THOMAS M'CUNE, D.D.S.

SOME weeks since, while examining the mouth of a gentleman of this city, thirty two years of age, I was surprised to notice the four temporary posterior molars still in situ; these teeth are very firm and sound, with no indications of absorption. Their successors, the posterior bicuspids, are wanting; and the query with me is, Where are they? Have they

never been developed? Are they still in embryo? Are they developed, and waiting patiently for the temporary molars to give them place? And whether, if the latter were extracted, the former would ever come forward?

The object of this article is to call forth the practical experience of members of the profession on this point.

The dens sapientiæ of this gentleman are also behind time, only one having made its appearance, making *four* molars on that side. What says the DENTAL COSMOS?

COLUMBUS, O.

In answer to the above, we would say that when we meet with such irregular shedding of the deciduous teeth, and the mouth is regularly filled, we let them alone, if they are sound; but if the mouth can spare them without occasioning irregularity, in case of the non-appearance of the second, we advise their extraction. It is not always true that all deciduous teeth have successors. It belongs to some families. J. D. W.

PROCEEDINGS OF DENTAL SOCIETIES.

PENNSYLVANIA ASSOCIATION OF DENTAL SURGEONS.

REPORTED BY GEO. T. BARKER, D.D.S.

A STATED meeting of the Association was held on the evening of February 7th, 1860, at eight o'clock.

Vice-President, Dr. T. L. Buckingham, in the Chair.

Present, Drs. Parry, McQuillen, Kingsbury, Githens, Harris, Hopkins, McCurdy, and Suesserott.

The Secretary being absent, Dr. J. L. Suesserott was chosen Secretary *pro tem*.

The minutes of previous meetings were read and approved.

The committee on a fee bill for the Association reported that in consideration of the fact that the adoption of any scale of prices, on the part of the Association, could not be made binding on all the members, they deemed it inadvisable to present a schedule liable to constant violation, but recommended the propriety of each member having a scale of charges drawn up and placed in some accessible position in his office, or printed in a neat form upon cards, to be furnished when necessary, so there could be no misunderstanding between patients and operators in the settlement of the just claims of the latter upon the former.

On motion, the report was adopted and the committee discharged.

The committee on reprinting the constitution reported they had attended to that duty, and were accordingly discharged.

The committee on membership reported in favor of the election of Dr. C. P. Fitch, of Philadelphia, as an active member; of Dr. E. Maynard,

of Washington, District of Columbia, Dr. A. Westcott, of Syracuse, New York, Dr. Jas. Taylor, of Cincinnati, and Dr. P. H. Austen, of Baltimore, as honorary members. Upon separate ballot each was elected.

The proposed amendment of by-law, changing the monthly meetings of the Association from the third Tuesday evening to the second Tuesday evening in each month, was discussed and adopted.

After some general discussion, the meeting adjourned.

A monthly meeting of the Association was held on the evening of February 14th, 1860, at eight o'clock.

President, Dr. Dillingham, in the Chair.

Present, Drs. McQuillen, Harris, Suesserott, Buckingham, Townsend, Peirce, Hayhurst, Garretson, Kingsbury, Fitch, Hopkins, McCurdy, and Barker.

Dr. J. H. McQuillen, having been appointed to read an essay at this meeting, offered one upon

“THE ABSORPTION OF THE FANGS OF DECIDUOUS TEETH.”

Upon motion, the thanks of the Association were tendered to Dr. McQuillen for his able paper, and a copy requested for publication.*

The regular subject of discussion for the evening was then taken up, being

“THE CONSIDERATION OF OCCASIONAL ACCIDENTS, INCIDENT UPON
DENTAL OPERATIONS.”

The subject having been proposed by Dr. Harris, the discussion was opened by him.

He remarked that there were many accidents, which might often occur, which would call for immediate action upon the part of the dental practitioner: he should, therefore, be able to act with judgment and discretion, and should not be willing to throw the treatment of such cases into other hands.

One of the most common accidents was dislocation of the inferior maxilla, which might be produced by opening the mouth of the patient too widely, or, perhaps, more often the result of the strain upon the part in the extraction of a tooth. The mechanism of the dislocation was simple. When the mouth was opened, the inter-articular fibro-cartilage, with the condyle, glided forward upon the eminentia articularis.

If this movement was continued too far, and the external pterygoid muscle contracted forcibly at the same time, the condyle would slip forward into the zygomatic fossa, the coronoid process being pressed against the malar bone, the axis of the ramus would be directed obliquely backward, and the dislocation would be thus complete. In this way both condyles might be displaced or only one.

* In consequence of a press of material, the publication of this paper will be postponed to a future number.

The first case that came under his notice was one that happened to a patient in his chair. He reduced the dislocation by standing before the patient, and applied his thumbs to the molar teeth upon either side, and depressed the angle of the jaw, at the same time that he raised the chin by means of his fingers spread out beneath it. The bone returned with a forcible snap, and not having protected his thumbs, as he should have done, with a napkin, the effect upon those organs was *somewhat unpleasant*.

He had met with a case of a gentleman in the city, with whom there seemed to be a tendency to dislocation upon one side, it having several times occurred. It was his practice to support the jaw with a bandage when operating for such patients.

Cases would be met with where there was a predisposition to syncope. A patient called upon him a short time since to have some operations performed, and he fainted three or four times before operating. He placed him in a recumbent position, elevated his feet, and by using stimulants the faintness would pass off; but when he felt it returning, while operating, he would stop and place him in a recumbent position, and was thus enabled to finish the work.

He attempted to extract a tooth, upon one occasion, and was unable to do; but the gentleman fainted, and while in this condition he extracted the tooth with comparative ease. He did not know whether the relaxed state of the system allowed him thus to succeed.

The dental practitioner would often be called to extract teeth from enceinte females, and there was great responsibility resting upon his action. In one case, where the pain from the tooth was very severe, and threatened to produce abortion, he assumed the responsibility, and extracted the tooth with the happiest results.

Dr. T. L. Buckingham remarked, that upon several occasions he had been called upon to extract teeth from enceinte females. It was his practice to remove the teeth, when the pain could not be abated by the usual remedies.

He thought care should be taken not to place ammonia to the nose of a person in a fainting condition, as its effect would be to excoriate the mucous membrane, and might also produce fatal results.

Dr. Kingsbury had met with one case of a lady who had been for a length of time an invalid, and with whom there seemed to be a tendency to dislocation; the muscles were relaxed, and he had no difficulty in reducing the dislocation. In operating for the patient afterwards, he made it a point to support the jaw with his right hand.

Dr. Fitch had met with two cases of dislocation in his practice. The first he reduced in much the same manner as did Dr. Harris, with the exception of having his thumbs pinched. The second he reduced by taking a piece of hickory and using it as a lever, making the lower jaw the ful-

crum, and, as the force was applied, was enabled to push the lower jaw back to its place. He had also met with and treated a case of fracture of the inferior maxilla. The fracture occurred at the symphysis; the usual modes of inducing union had been tried without effect. He could not take an impression, but took the measurement of the jaw from the first molar on the right, to the first molar tooth on the left side, then made a platina plate with holes opposite each tooth, and with fine platina wire passed around the teeth, was enabled to draw the fractured ends together. After wearing the plate six weeks, sloughing took place to some extent, but eventually the bone united.

Dr. McQuillen referred briefly to the peculiar anatomical conditions constituting a decided predisposition to luxation of the lower jaw; to the employment of pieces of cork between the opposing teeth, and the application of upward pressure, forcibly applied at the chin, in reducing the difficulty when established, and concluded by describing a somewhat novel course of treatment, adopted by Dr. Physick on one occasion, his authority for the statement being Prof. Mütter, who he had frequently heard narrate it in his lectures. It was as follows:—

A woman who enjoyed the reputation of being a noted shrew in the neighborhood where she lived, would frequently, in the height of passion, when her tongue was most actively employed, have a sudden stop put to its operations by a dislocation of the lower jaw; invariably applying, under such circumstances, to Dr. P. for relief, on the occasion referred to, (having had his patience exhausted by the frequency of the visits,) he offered a chair, and requested her to be seated; as she was in the act of doing so, the chair was suddenly removed, and she came upon the floor with sufficient *vis a tergo* to reduce the dislocation.

Dr. Garretson had met with an interesting case of trismus in practice, which was the result of lateral pressure of the wisdom teeth upon the second molars.

He succeeded in extracting the second molars, and the patient was relieved.

He had also met and treated an exceedingly interesting case of ankylosis. The patient was a farmer, who, while very warm, went to sleep in a cool barn, and contracted a severe cold. When he presented himself, he was unable to eat anything, and could only obtain nourishment by sucking liquids between his teeth. The lymph had been organized for a space of nine weeks. He applied leeches, and painted the parts with tinct. of iodine, his treatment being strictly antiphlogistic. He also administered the iodide of potassium internally, and in a short time the patient was relieved.

A monthly meeting of the Association was held on the evening of March 13th, 1860, at eight o'clock.

President, Dr. Dillingham, in the Chair.

Present, Drs. Garretson, McQuillen, Fitch, Harris, McCurdy, McGrath, Hopkins, Townsend, Buckingham, and Barker.

The subject of discussion being

“THE TREATMENT OF DECIDUOUS TEETH,”

was opened by Dr. Barker, who remarked that, in proposing the subject under discussion, he did so, feeling well assured of its importance and value, and that perhaps the benefits of dental surgery were more observable in this branch of our science than in almost any other.

The dental practitioner would be called to treat disturbances arising from these teeth, when the life of the little patient would seem suspended upon a single thread, and where perhaps an error in judgment would produce a fatal result.

He would briefly refer to some of the most prominent local and general disturbances of the system, which were the result of interrupted dentition, where the progress of dental development had been suspended by some condition of the system, or mechanical obstacle, and this would be found in the superimposed gum.

The gums would become greatly inflamed, and frequently accompanied with swelling and tenderness of the salivary glands, with a profuse flow of viscid saliva.

The general disturbances to the system were often of a most dangerous nature, evinced by rapid pulse, dry hot skin, hurried respiration, and broken sleep, accompanied by sympathetic affections of the bowels, brain and nervous system, producing spasmodic twitching of the muscles, or violent convulsions, oftentimes ending in death. Of course there would be but one method of treatment indicated, and that the free use of the lancet upon the superimposed gum. The theory had been advanced that the cicatrice would not be so readily absorbed, but observation had shown the fallacy of the assumption.

The deciduous teeth were also subject to caries, necrosis, and alveolar abscess. He would not enter into a consideration of the origin of these diseases, but would confine himself to their treatment alone.

Many practitioners, and almost all parents, thought caries of the deciduous teeth was of no consequence and not worth treating. He, however, thought differently, and believed that those teeth should be filled and preserved until nature herself indicated that they were no longer needed in the economy. He did not advocate that they should be filled with gold, or that the fillings should be as hard and solid as in permanent teeth. He had used tin-foil and Hill's stopping, and had found them answer every purpose, so far as the preservation of the teeth.

It was not uncommon to see the deciduous teeth remaining until very late in life, supplying the place of the permanent teeth, which had never presented, and if perfect or well filled, doing excellent service. Also if the temporary have been removed before the permanent teeth were ready to take their place, the arch would become contracted, and when they did

present, they not having space in the arch, would be thrown anterior or posterior to it, constituting a difficult case of irregularity.

He thought the practice of applying the arsenical preparation to exposed nerves in deciduous teeth was most dangerous and unwarranted. His reasons for such an assertion were—First. That no practitioner could tell how far absorption had progressed, and what was the size of the foramen in the fang, and that if it was large, and the arsenical preparation was absorbed, its effects upon the system would be most mischievous, producing inflammatory diseases of a dangerous character. Secondly. Children might be noted for possessing short memories, particularly so when they anticipated a painful operation, so that it may be left in too long, producing discoloration, and eventually the loss of the tooth. Lastly. Contended that there were other agents not so dangerous, that would accomplish the same design, viz., the destruction of the pulp.

He had used creosote and sulphate of morphia, with excellent success, applied upon a pledget of cotton, and if these were forgotten, the result would not be the least unpleasant.

He advocated that there should be but one method of treatment for deciduous teeth that were necrosed and ulcerated at their roots, and that should be extraction, as exfoliation of the alveoli, to a greater or less extent, would often supervene, and in the exfoliated bone would be found the sacs inclosing cells of one or more of the permanent teeth. There might be cases where there was alveolar abscess at the fang, where the pulp cavity could be opened, and kept free for the discharge of pus; it might then be best to allow such teeth to remain. He had, however, seen cases where he believed the permanent teeth were injured by inflammatory and ulcerative action at the roots of the deciduous teeth.

Dr. Harris objected to the position assumed by the preceding gentleman, and believed that no impression would be made upon the permanent by inflammatory and ulcerative action at the roots of the deciduous teeth. He thought nature had provided for such a condition, by supplying the permanent with nutritive vessels unconnected with the deciduous, and thought those dead teeth would be disposed of in the same manner as foreign substances were in other parts of the economy, and that, too, without affecting the surrounding structure.

He also thought that, at the time ulcerative action was progressing, the permanent teeth would be so far developed that they would not be influenced by such action. It was true that the permanent often came through defective, and in some cases the entire crown would be wanting; but he did not think this condition would be produced by diseases of the deciduous, but regarded it as the result of defective structure, induced long before the deciduous teeth were even carious.

Dr. Fitch remarked that he always filled the deciduous teeth whenever he was permitted to do so.

He thought it important, in order to prevent premature suffering, and preserve those organs in a healthy condition until nature should indicate their removal by the presence of the forthcoming permanent tooth. Most generally filled those teeth with tin-foil, or some other safe material easily introduced; but would not employ any amalgam.

Would condemn the practice of too early extraction in order to make room for second dentition. Would seldom, if ever, recommend the removal of a deciduous tooth to obtain space for an adjoining permanent one, and would tolerate slight temporary irregularity rather than resort to this practice. In a recent case, however, had recommended the removal of the first canine teeth where they had been pushed anterior to the arch, and were much loosened in their sockets, thus ceasing to be any longer a support to it.

Would adopt a course of treatment for the ulceration of deciduous teeth very similar to that used for permanent ones. Should restore the tooth to health if possible. Yet was persuaded that alveolar abscess might affect unfavorably the development of the permanent tooth, and even produce necrosis. Although this was not usually the case, yet thought there was occasion for the exercise of care. He was well aware that he was stepping upon controverted ground. But, that the permanent may be disturbed in their development by ulceration of the first teeth, he had no doubt. He had occasion to extract a first molar, a short time since, where ulceration had been produced about a year, and found, upon examination, that the enamel of the bicuspid presented a structure resembling moistened chalk or-freestone, and could be easily removed with a sharp instrument. The case passed from his observation by a removal of the parents, very much to his regret.

In another instance found the enamel of the six front permanent teeth presenting a honey-comb surface, but the bicuspids and molars were beautifully developed. On making inquiry, found that the child, quite early in life, had suffered from extended alveolar abscess of the front deciduous teeth. This condition of enamel usually arises from disturbed or vitiated function. He would not be willing to take the position that ulceration had no influence in producing this condition of the permanent teeth, especially when it takes place between the eighteenth and thirtieth month, and even later in life, and thought it possible for the permanent teeth, the investing membrane, and alveolus, to be destroyed by inflammation, and consequent sloughing.

Dr. McQuillen remarked that, as the result of observation, the conviction is forced upon one, that few parents have a just appreciation of the value of the deciduous teeth. This conclusion is not arrived at merely from the fact that the advice and assistance of the dental practitioner is rarely demanded until after decay has progressed so far as to expose the pulp, but additional evidence is afforded in the culpable carelessness manifested, on their part, in neglecting to take advantage of the means

best calculated to *prevent* the development of caries, viz., *cleanliness*. Parents, however, are not alone to blame for this want of appreciation, and the non-performance of operations demanded, as it must be conceded that there is an indisposition on the part of the profession generally, to devote that attention to the preservation of these organs which in simple justice is required at our hands. The difficulty of managing children—want of time—non-appreciation of services—inadequate compensation, *et cet.*, are offered as so many excuses for neglecting the claims in this direction; and yet it cannot be denied that there are three conclusive arguments (which should be impressed upon the minds of parents) for the performance of timely operations upon the deciduous teeth. 1. By arresting the progress of decay, exposure of the pulp and consequent pain is prevented. 2. The vitiated buccal secretion attendant upon the presence of decayed teeth—recognized by all as eminently calculated to induce systemic derangements in the adults, and the liability to which, instead of being lessened, is increased by the tender age of the patient—is obviated or corrected. Last, though not least, the teeth, by remaining as long as nature intended they should, the symmetry of the alveolar arch is preserved, and irregularity of the permanent teeth prevented. Governed by considerations such as these, he is in the habit of filling the deciduous teeth, and has had frequent opportunities of noticing the beneficial results of such practice as year after year has passed by. The material employed is gold-foil, in the introduction and consolidation of which, however, the pressure is very much modified from what it would be in filling a permanent tooth. To overcome the constant tendency of the jaws to close, he introduces a piece of cork, of appropriate size, to act as a wedge. When the decay has progressed so far as to expose the pulp, and the patient is suffering intense pain, he has frequently afforded relief by a practice that would have just the opposite result in an adult tooth; he referred to puncturing the pulp; under such circumstances, profuse hæmorrhage takes place from the engorged vessels, and pressure upon the nervous filaments being removed, the pain disappears. He could see no objection to the careful employment of the arsenical paste preparatory to the extirpation of the pulp. Has been in the habit of using it (of course with discrimination) for years; referred particularly to one case, out of many which he could recall where the result had been satisfactory alike to parents and operator. When making the application to deciduous teeth, does not leave it in the cavity more than twelve hours. If the patient did not come to him in due time, would make it a point to visit the residence of the child, as he had done on one occasion, expressly to remove it. Having removed the application and the devitalized pulp, in the course of a day or two he fills the fangs with gold, and the cavity of decay, if of considerable size, with a plastic material. He conceived it *possible* that periodontitis, and subsequent alveolar abscess of a deciduous tooth, could affect the permanent one during the formative stage, but

believed such cases to be rare. In treating alveolar abscess of the deciduous teeth, is in the habit of making a free opening into the pulp cavity, removing the decayed dentine, and thus obtains a free discharge of pus—eventually employs creosote and other remedies, to establish a healthy action, and, if indicated, fills the cavity as in the case of an exposed pulp. With regard to the extraction of the deciduous teeth, thought that it frequently required considerable judgment, discrimination, and firmness, not to be controlled by the importunities of parents when insisting upon the removal of a tooth whose successor will not erupt for years. Preventing, as these organs do by their presence, the contraction of the alveolar arch, it is important that they should not be removed until decided evidence is manifested of the eruption of the permanent. This position could not be too strongly insisted upon, as not unfrequently cases are presented where the deciduous teeth (that have remained firm some time after the regular period of shedding) have been extracted, under the impression that by so doing the eruption of the permanent teeth would be facilitated, but unfortunately the expected organs have entirely failed to present themselves. He could recall frequent instances of such arrest of development, and several cases in which patients had come under his hands still retaining their deciduous canines, though some of them are past thirty-five years of age. Answering the purposes of mastication, and contributing to the appearance of the person, added to the possibility of not being succeeded by the permanent, it certainly would be an unjustifiable operation to remove such teeth.

Dr. Harris remarked that perhaps the most important deciduous teeth, and those which should be retained as long as possible, were the cuspidati, as they bore the relation of abutments to the arch, and would greatly assist proper expansion.

He was in the habit of filling children's teeth with tin-foil, and had also used simple gutta-percha with good success. Was not in the habit of applying arsenic to exposed nerves in deciduous teeth, as he believed the effect would often be to cause sloughing of the periosteum and abscess at the roots.

He thought the formative process was carried on in second dentition without any relation to the first, and had invariably found that those pits and depressions found upon the enamel were due to some constitutional disturbance (generally exanthematous diseases.)

He had frequent opportunities for seeing such teeth, as he had a number of children under his charge in a public institution, whose teeth presented the appearance of having been punctured with a red-hot needle; they were usually of a scrofulous diathesis, who had also been deprived of proper nutritive food in early life.

A case came under his notice but a short time since. A lady called upon him, and he found the teeth presenting this pitted appearance; he at once asked her if she had not suffered with small-pox in early life; she

told him she had, at two years of age, though no pits were present upon the skin.

Had extracted deciduous teeth, and found the permanent in the condition described by Dr. Fitch, but thought the impress was made long before the temporary were ready to extract.

Dr. Fitch had never filled the fangs of deciduous teeth, and did not think it advisable, for two considerations:—The period was so brief for which they were required in the mouth that it was unnecessary. Also the foramen at the apex of the root being quite large in deciduous teeth, and the process of absorption going forward, thus enlarging the fang opening, rendered it very liable for the operator to push the filling through, and thus produce periosteal difficulties, increasing the mischief rather than diminishing it; supposed that it was possible to fill these fangs without any unpleasant results, yet did not think the circumstances demanded it.

Resorted to the use of arsenious acid occasionally, to destroy the nerves of these teeth. However, introduced a very small quantity, leaving it in the tooth three or four hours only. Generally employed creosote. Could accomplish more with this than with almost any other agent, and seldom had occasion to use anything else.

Dr. McQuillen, in reply to questions by Dr. Fitch, said that in filling the pulp cavity of a deciduous tooth, he is controlled by the same views that govern him in operating upon a permanent tooth under similar circumstances. Believes that if the cavity is not filled with some material by the operator, eventually the serum collecting there and decomposing, will induce the development of alveolar abscess. When introducing the filling, of course graduates the pressure to suit the peculiar relations of the part. Did not think the *presence* of the gold in the fang would materially affect absorption, but had little doubt that the previous operation, the removal of the pulp, would, to a great extent, interrupt that action. Could not, however, regard this as an argument against the propriety of the operation. When the nerve becomes exposed, the question to be decided upon, is removal of the pulp, or tooth. If the deciduous teeth were very loose, forced out of their position, and not contributing to the support of the arch, should regard extraction, of course, justifiable.

Dr. Buckingham had used the arsenical preparation to destroy the nerves in temporary teeth, but it required great care to use it properly. If much absorption of the fangs had taken place, he would not employ it. In such cases it would be absorbed very rapidly, and carried into the circulation, and would produce as serious effects as if taken into the stomach.

The preparation he used was composed of equal parts (by weight) of arsenious acid and the sulphate of morphia, made into a thick paste with creosote. When the paste is first made he allowed the bottle to stand open, so that the most of the creosote might evaporate. The preparation

should then be made so dry that it could be rolled into small pellets. A pellet, about the size of the head of a small pin, he would place on the exposed nerve, and then cover it with a pledget of cotton, saturated with varnish, allowing it to remain from twelve to twenty-four hours—when he could generally remove the nerve without causing much pain. He then filled the cavity without forcing the filling far down into the fangs.

He generally used gold or tin foil for these cavities, but did not pack it as solid as he would in a permanent tooth.

Dr. Garretson was opposed to the use of arsenic in cases referred to, and though he had never used it, would not feel justified in so doing. He objected to its use in consideration of the inflammatory tendency in children, believing that if absorbed it would produce gastritis. The vascularity of the deciduous teeth, and the impossibility of knowing the exact condition of the foramen, was cause sufficient for him to be fearful of it. He preferred, in such cases, *theory* rather than *practice*, and believed that development or absorption would be influenced much by the general condition of individual life.

Dr. McQuillen said, with regard to the arsenical paste, it has been used in the deciduous teeth by a number of practitioners for years. From the *experience* thus gained, he saw nothing in the mere *theoretical* objections advanced, to militate against the *careful* and *discriminate* use of that article. We are candidly informed that views presented in opposition are not based upon experience gained in the employment of the agent, but predicated upon hypothetical contingencies that *possibly* may ensue.

Admitting such results to follow even after *careful* and *judicious* use, the rareness of such occurrences would not be sufficient ground for abandoning in *toto* a valuable agent in 999 cases out of 1000. Again, it by no means must be taken for granted, without a question of doubt, that this singly and alone would be the cause of trouble; other causes (*predisposing* and *exciting*) may have as much or more to do with it. The same course of reasoning offered, could be applied with equal force and as much justice against the exhibition of every remedy of any potency in the *materia medica*. It was to him a strange doctrine to hear that *mere theory* is better than *experience* and superior to *practice*. He contended that the most plausible theory that can be conceived, if unsustained by experience and observation, or in direct opposition to them, however ably defended, would be but an empty dream. In drawing conclusions, however, from experience and observation, care should be exercised to obtain a broad basis, and not rest them upon isolated and unconnected facts, or one may be led into the same error that befell the French student, who, when a fellow-boarder in London fell sick of a fever, and in response to the repeated solicitations of the landlady to drink plenty of water, promised to do so if furnished with a salt herring, and the patient recovered, made a note of the fact that "a salt herring cures an Englishman of a

fever," and determined to employ the same remedy the first opportunity that offered. He returned home, tried it, and his patient died, whereupon he recorded a postscript—"Though a salt herring cures an Englishman, it kills a Frenchman." With regard to the allusion to Professor Gibson's emphatic reiteration of principles, principles, principles! he recognized fully the force of the admonition, and believed that there could be no sound practice that had not such a basis. But the difference between mere theory and principles must be apparent to every one. The first may have no foundation in fact, the last are immutable laws or facts, based upon observation and experience, many of which have stood the test of ages.

Dr. Barker contended that though not willing to admit that theory was better than practice, still thought any agent that in "*some cases*" produced bad results, should be discarded if others that were harmless would produce the end desired. He believed we possessed such agents; and though they might take longer, would still accomplish the object in view. The same position that had been taken of arsenic might also be taken of other modes of practice—such as capping exposed nerves, leaving pulp cavities unfilled, and many others—no one could doubt that in some instances they were successful, yet they were discarded because of their failure in others.

Dr. Townsend remarked that arsenic could be used safely in the treatment of exposed nerves in deciduous teeth; he had used it with good success, as had many eminent practitioners. He thought it was not difficult to ascertain how far absorption had progressed in the fang. Had never found that alveolar abscess or necrosis affected the permanent teeth.

Dr. Dillingham had for many years been in the habit of using the arsenical preparation with good results in the deciduous teeth, though he believed it required great care and caution. He did not think that alveolar abscess or necrosis would produce any effect upon the permanent teeth.

On motion, "Absorption of the Fangs of Deciduous Teeth" was selected as the next subject for discussion.

The meeting then adjourned.

DENTAL COMMENCEMENT.

BY GEO. T. BARKER, D.D.S.

THE Annual Commencement of the Pennsylvania College of Dental Surgery was held on the evening of the 29th of February, 1860, at Musical Fund Hall, in the presence of a large and appreciative audience.

The exercises consisted of music by the Germania Orchestra, prayer, conferring of degrees, and the valedictory.

The degree of "Doctor of Dental Surgery" was conferred upon the

following gentlemen by Daniel Neall, D.D.S., in the absence of the President of the Board of Trustees:—

Names.	Residence.	Subject of Thesis.
José Francisco Piar,	Cuba,	Caries of the Teeth.
Hy. Alex. Schmidt Schaller,	Germany,	Treatment of Diseases of the Teeth.
Manuel de J. Gutierrez,	Cuba,	The Use of the File.
James M. Clement,	Md.,	Predisposing Causes of Caries.
George Dieffenbach,	N. Y.,	Exostosis and Necrosis of the Maxillary Bones.
L. B. Henderson,	N. C.,	Inflammation of Maxillary Sinus.
Edward Robertson,	R. I.,	Dental Science.
George K. Heist,	Va.,	Dental Caries.
Edward Lukens,	Pa.,	Formation and Eruption of Deciduous Teeth.
George H. Crary,	N. Y.,	Pivoting Teeth.
William A. Allen,	S. C.,	Dentistry in the middle of 19th Century.
Leopold Munster,	N. Y.,	Taking Impressions.
Augustus G. Coleman,	N. Y.,	Mechanical Dentistry.
Ezekiel L. Cloyd,	Ark.,	“ “
Nathan H. Tulloss,	Iowa,	Development of Deciduous Teeth.
George F. Platt,	Conn.,	Selection and Arrangement of Artificial Teeth.
James P. Goodwin, Jr.,	R. I.,	Cause of Caries of Teeth.
Charles Henry,	Ga.,	Pivoting Teeth.
Michael B. Earle, M.D.,	S. C.,	Concomitant Diseases of Dentition.
Matthew R. Banner,	N. C.,	First Dentition.
Robert M. Mayes,	Tenn.,	Filling Teeth.

The valedictory was then delivered by T. L. Buckingham, D.D.S., professor of chemistry, and was listened to with marked attention.

He congratulated the class upon the successful completion of their course of study, and felt assured they went forth well equipped for professional responsibilities.

He called upon them to estimate highly the importance of their profession, and to adorn it with the best services of their lives, and that the excellence of a meritorious and honorable calling would never be appreciated unless those actually devoted to it cherished and exhibited a proper estimate of its value. It was to be presumed that those who knew most of any art or science, would be best acquainted with its peculiar merits. Their manifest sense of its value would probably be the criterion by which others would judge of it. Let the disciples of such a science seem to regard it with disrespect, the example would prove contagious and demoralizing, and few would be found to espouse or honor it.

He referred to the advancement which had taken place in the science of dentistry during the past half century. A few years since, it was considered a very subordinate and insignificant appendix to medicine, and the only attention of which the teeth were thought worthy, was that paid to some troublesome decayed grumbler, by its violent extraction.

The science had also suffered from the impositions of quackery, and he presented a case which a few years since might often have been met with. An indolent carpenter or ambitious son of St. Crispin, weary of the plane or waxed ends, would *turn in* for a month with some traveling tooth doctor, and then *turn out* a dentist.

He thought a still more fundamental cause of the comparative disparagement in past times of our profession was due to an undervaluation of the entire dental organism, and its relation to other parts and functions of the human system: the teeth have been looked upon to be identical in their construction and growth with the nails, and their chief use to be only for mastication, apart wholly from the connection existing between this action and digestion. If, therefore, dentistry shall receive the credit to which it is entitled, and the profession attain due popular appreciation, it must be by having correct views prevail of the value and importance of the dental organism. The public should be led to see science and art in their true relation upon other important and vital functions of the human system, and the general comfort and well-being of man.

The number of matriculants the past session was fifty-one, showing an increase over the preceding years.

The demonstrators' reports we append in full, indicating, as they do, that both college and clinics are in a most prosperous condition.

OPERATIVE DEPARTMENT.

308 patients for whom the following operations were performed.

Gold Fillings	612
Tin Fillings.....	310
Amalgam Fillings.....	6
Treatment and Filling of Pulp Cavities.....	120
Superficial Caries Removed.....	15
Extraction of Teeth and Roots.....	2858
Removal of Salivary Calculi.....	50
Pivot Teeth Inserted.....	25
Treatment of Inflammation of Gums.....	12
“ Alveolar Abscess.....	29
“ Irregularities.....	18
Total.....	4055

D. H. GOODWILLIE, D.D.S., DEMONSTRATOR.

MECHANICAL DEPARTMENT.

An artificial under jaw with partial upper one, together with the requisite teeth supplied in each.—Deposited.

Whole Sets of Teeth.....	24
Upper Sets.....	46
Under Sets.....	4
Whole Upper Sets, Block.....	18
Partial “ “.....	1
Partial Sets of Single Teeth.....	43
Irregularity Plates.....	2
Whole Number of Teeth Mounted.....	1579

J. J. GRIFFITH, D.D.S., DEMONSTRATOR.

ALUMNI OF THE PENNSYLVANIA COLLEGE OF DENTAL SURGERY.

THE Fourth Annual Meeting of the Alumni of the Pennsylvania College of Dental Surgery was held on commencement day, (Feb. 29th, 1860,) at the college. Minutes of the preceding meeting were read and approved.

There being no reports from committees, the election of officers being next in order, the following were elected :—

President,	Dr. George T. Barker, of Philadelphia.
Vice-President,	Dr. Charles Henry, of Georgia.
Secretary,	Dr. D. H. Goodwillie, of Philadelphia.
Treasurer,	Dr. E. Lukens, “ “
Librarian,	Dr. J. P. Goodwin, of Rhode Island.

The following gentlemen were appointed to prepare essays to be read at the next annual meeting of the Alumni: Drs. Platt, Lukens, and Clement. After discussing the subject of Treatment and Filling of Nerve Cavities, the meeting adjourned to meet on next commencement day, when it is hoped there will be much done to the *honor of our Alma Mater*.

D. H. GOODWILLIE,

Secretary of the Alumni.

BALTIMORE COLLEGE OF DENTAL SURGERY.

WE find, by a programme of the exercise furnished to us, that at the Annual Commencement, held Tuesday evening, February 28, 1860, the diploma of the institution was conferred upon the following gentlemen:—

Amzi W. Alexander, N. C.; James B. Bean, Fla.; Thos. E. Bessellieu, S. C.; Charles Billingslea, Md.; John Bland, Ark.; Hugh P. Bone, Ala.; Memory Bonner, M.D., S. C.; Abiel Bowen, N. Y.; Conrad S. Boyd, N. C.; Wm. N. Cunningham, La.; Wm. B. Dennis, R. I.; John H. Dickson, M.D., S. C.; John W. Doniphan, M.D., S. C.; Charles E. Dunn, Ky.; Wm. C. Dunnavant, Va.; William H. Gates, Ga.; Charles O. Hall, Conn.; Thaddeus Haynie, Va.; Thomas M. Henley, Va.; J. Carroll House, N. Y.; P. Fernando Hyatt, Penn.; Theodore A. Lafar, S. C.; John M. Lazier, Va.; George C. de Marini, R. I.; David R. McCallum, S. C.; Adam H. May, Penn.; John S. Moore, N. C.; Henry H. Nelles, Canada; Perry Ould, Md.; George Patterson, Ga.; Daniel E. Provost, N. Y.; C. Dighton Seward, Texas; J. Vernon Simmons, Md.; Archibald Small, N. C.; Benjamin Smith, Md.; Samuel Stoddard, Va.; B. S. Traywick, N. C.; William H. Waters, Vt.; C. A. Woodward, R. I.

The valedictory address to the graduates was delivered by Professor Bond. The number of matriculants in attendance during the session was seventy.

J. H. M'Q.

NORTHERN OHIO DENTAL ASSOCIATION.

IN response to a memorial addressed to the profession of Northern Ohio, a portion of those present at the convention held at Cleveland last May, met in the same city at 2 P.M., March 6, 1860, for the purpose of organizing the Northern Ohio Dental Association, viz., adopting a constitution and by-laws.

On motion, Dr. B. Strickland was elected Chairman.

After the object of the meeting had been communicated to the body by the Chairman, on motion, members of the profession present were invited to participate in the proceedings.

A constitution and by-laws were then presented, and, after slight modification, adopted.

On motion, the Association proceeded to the election of officers for the ensuing year, which resulted as follows:—

Dr. B. Strickland, President, Cleveland; Dr. H. P. Huntington, Vice-President, Painesville; Dr. C. R. Butler, Rec. Secretary, Cleveland; Dr. B. F. Robinson, Cor. Secretary, Cleveland; Dr. F. S. Slosson, Treasurer.

Examining Committee.—Drs. W. H. Atkinson, Cleveland; C. Palmer, Warren; B. F. Spelman, Ravenna.

On motion, the Secretary was instructed to prepare a synopsis of the proceedings for publication.

The Association then adjourned to meet at Cleveland on the first Tuesday in May, 1860, at 7½ o'clock P.M.

C. R. BUTLER, D.D.S., *Rec. Secretary.*

EDITORIAL.

EXPRESSING OPINION.

WE are constantly receiving letters from members of the profession at a distance, to give our opinion or experience about the various new methods of practice, inventions, or modifications of plans of doing the same thing. We would say here, that we do not care what method a dentist may adopt to plug a tooth, whether he uses the gold in pellets, strips, ropes, ribbons, cylinders, or in bunches, if he succeeds in making a good filling. No one can deny that there have been superior operations made with ordinary gold-leaf, but since the properties of gold have become better understood, doubtless, in some respects, many operations are made with it that could not formerly have been done so well. It does not seem to us that the operator who does not adopt every suggestion is not a dentist, else we should class the late Hudson, Gardette, and other illustrious names among the tyros of our art. We fear too many are led to think that if they succeed in putting a high polish on a filling, that they are proportionately better dentists than those who have gone before them. We do not feel that it is our duty or privilege to condemn or applaud a certain method another may see proper to adopt, but only speak of it in the regular course of investigation, and writing on the merits of each plan as it comes up. Every one, doubtless, is acquainted with our views about amalgam, and every day we live we see more to confirm the views already expressed;

but if other operators find it necessary to use it, and their patients are satisfied with it, we have nothing to complain of. We have used Hill's stoppings to advantage in many cases, and we are now in some cases using another article, and if it proves to be useful in the cases we have employed it, we will say so hereafter. It is very certain that each discoverer of a new thing is very apt to say more in its favor than its merits will sustain. We have been repeatedly asked to say, through the journal, whether this or that one's mode of practice or materials used for setting teeth is a "humbug." If we do not use them, and the community, or a large number, choose to adopt new materials advocated for setting teeth, and we do not like them, we have no cause to complain, nor do we think it would be proper for us to condemn those who supply them. From some cause, which we cannot now explain, we fail to get our patients to adopt anything but gold for plates in permanent work, and a great many will have nothing else even for temporary sets. A newspaper editor may speak as he thinks proper about the morals of a community, or its administrators of the law, but we do not feel that it is our duty to refer to any one, or his mode of practice, that does not square up with our views of correct morals in the profession. It ought to be the aim of every one to strive to elevate and refine the community in which he lives in their appreciation of our art, to raise the standard of excellence of his operations so far as his practice will bear it; but economy in "getting up work," on the part of the dentist, has a strong tendency to lower the appreciation of our profession. Yet a large number must be governed by price; still, that should not lead the dentist to the general adoption of a degraded style of operations, and urge that as a standard of excellence. What will suit one class of patients will not satisfy another: hence a dentist may make his practice very nearly what he pleases; he cannot well hold a mixed class of patients together; the intelligent will avoid him and his mean methods of doing work, while those who appreciate nothing better will gather around him.

J. D. W.

CLAIMS OF THE PROFESSION.

AT a period when a number of young and buoyant spirits are just entering upon practice, it is proper and necessary that they should ponder deeply over the character of the life-struggle that lies before them, and the nature and extent of all the duties which a faithful response to the claims of the profession demands of them to discharge.

While recognizing and fully responding to the claims their fellow-beings have upon them as practitioners of a humane art, it should also be remembered that, as votaries of a liberal profession, the obligation to cultivate assiduously its science is second only to the duty they owe their patients.

If each and all now engaged in the profession, and the future additions to its ranks also, should confine their attention exclusively to practice, and

neglect to cultivate an acquaintance with, and contribute to, its literature, it would be alike disastrous to the science and art of dentistry and to the community in general.

Not only would no advance be made, but much, if not all, that has been gained with so much difficulty and toil would soon be buried in obscurity; for as all human excellence is comparative only, to stop at any point, under the impression that perfection has been reached, is not even to remain stationary, but to retrograde.

As the profession has been elevated from its primitive condition through the successive labors of innumerable minds, it is alone by the continuation of such efforts, on the part of those that succeed them, that the point reached can be maintained and additional advancement secured.

The recognition of these facts should be a stimulus to constant, unceasing exertion on the part of all who are now entering upon practice.

From those who are endowed by nature with extraordinary abilities, and who, in addition, have enjoyed every advantage in an educational point of view, much of course will be expected. The consciousness of possessing such qualities, however, should not beget a vain confidence in these alone, and a disposition to continually defer all effort until a convenient season. Many whose attainments and abilities have excited anticipations on the part of their friends, (never realized,) have failed in this way to do justice to themselves and contribute their share to the advancement of knowledge. Ever bearing in remembrance that "rust is more fatal to metal than wear," and that if the intellect is not exercised by appropriate stimulus, it becomes weakened and relaxed, they should enter at once upon the work with the determination to prosecute it vigorously and continuously.

The necessity for still greater effort on the part of those who have been denied some of the advantages referred to above, must be apparent to all. The consciousness of this fact, however, should not induce a feeling of despondency, and is no excuse for spending the time, which should be devoted to overcoming those deficiencies, in useless repining and vain regrets. In place of regarding the difficulties and oppositions that must be encountered in this world as a cause of complaint, they should rather be looked upon as blessings; for biography proves to us that the trials and difficulties that many who have rendered eminent service to the world have had to encounter, have been the direct means of developing powers they were scarcely conscious of possessing. Burke, who was gifted with as great powers as perhaps were ever vouchsafed to man, truly says: "Difficulty is a severe instructor, set over us by the supreme ordinance of a parental Guardian and Legislator who knows us better than we know ourselves, as he loves us better too. *Pater ipse colendi, haud facilem esse viam voluit.* He that wrestles with us strengthens our nerves and sharpens our skill, our antagonist is our helper. This amicable contest with difficulty obliges us to an intimate acquaintance with our subject,

and compels us to consider it in all its relations; it will not suffer us to be superficial."

That opportunities for improvement are presented to all who choose to take advantage of them, is undeniable. What men have done, others may at least attempt to do. To accomplish anything in this direction, however, the course of studies entered upon should not be desultory, but systematic; the faculty of *concentration*, or the power of dismissing for the time being all previous subjects of thought, and fixing the mind upon one object only, should be cultivated; a proper distribution of time must be made; certain hours should be devoted to labor, study, recreation and rest, and rigidly adhered to; one must learn the value of minutes, to make the most of the short intervals that are liable to occur even between crowded engagements, to lose no time by the non-fulfillment of appointments on the part of others, and to be willing, when occasion demands it in the prosecution of certain lines of investigation, to labor while the world rests; to watch while the world sleeps. Those who will adopt such a course, no difficulty, however great, no opposition, however formidable, can intimidate. Success may not attend every effort, but much will be accomplished that could not have been effected without it. The very failures that attend such strivings, in place of enervating one, should only be the incentive to renewed exertion, repeated again and again, until at last every difficulty may be overcome.

If a success hardly anticipated attended the efforts of some, let it not beget the presumption of supposing that, having borne down all opposition, they have reached perfection, and may pass the remainder of their days in the contemplation of an imaginary superiority over others. Let such remember, that, however great in their own estimation the acquisitions may be, they are very, very small in comparison with all that remains to be learned.

J. H. M'Q.

REVIEW OF DENTAL LITERATURE AND ART.

BY J. H. M'QUILLEN, D.D.S.

A SYSTEM OF DENTAL SURGERY. By JOHN TOMES, F.R.S. With Two Hundred and Seven Illustrations. Philadelphia: Lindsay & Blakiston, 1859.

THE imperative nature of the duties that engrossed all the time at our command during the past winter, prevented that careful examination of the above work which would justify one in advancing an opinion as to its merits. Having, at the earliest opportunity offered, become acquainted with the entire contents, the favorable impression formed from a hasty survey when it first came to hand, was confirmed. As the author no doubt will admit, the most original and valuable part of this, as with his previous work, is the physiological portion. This remark is not made

with any intention to deny the claims that the practical part of the work has to the consideration of the reader, for it must be conceded that it is so far in advance of that portion of the subject as presented in his Dental Physiology and Surgery, is such a marked evidence of the progress made in operative dentistry within a very few years in England, and indicates in such a marked manner the prospect of a continuous development in the same direction, that one may well question the propriety of criticising too closely some points that have not made quite as favorable an impression as the rest. Particularly after the ungenerous and illiberal treatment to which the work recently has been subjected by one who, in penning what was intended to be critique, evinced more temper than justice.

In the preface to the work, the reader is informed that an attempt has been made to produce, within the limits of a manual, a strictly practical work on dental surgery. A superficial glance may induce some to think that Mr. Tomes has given an undue prominence to the physiological consideration connected with his subject in a work claiming to be practical in character. It should be remembered, however, by such, that physiology claims our attention, not as a branch of mere speculative knowledge, but as a science of immediate and vast practical utility.

It would be out of place here to dwell upon the importance of a thorough knowledge of anatomy, enlightened by physiology, in its application to the practice of dentistry; for it must be apparent to every one that rational practice can only be based on a correct knowledge of these sciences. The first step toward the cure of disease is to find out what the disease is, and where it is located. Without a knowledge of the structure, offices, and relations which the various parts bear to each other in the animal economy, our search to determine what organ or function is deranged must be most vague and indefinite. To no organs in the body does this remark apply with more force than to the teeth.

The first division of the work is devoted to a description of the changes which the jaws and teeth undergo from the earliest period of their formation to the maturity of the temporary teeth. The observations on this subject, evincing much originality and labor, are based upon a collection of young skulls which the author was compelled to make himself, as the museums, in which an extended series was likely to be found, were visited in vain. Selecting the *foramen mentale* and the *tubercles* for the attachment of the genio-hyoiglossus and the genio-hyoideus, as fixed points from which to make the measurements in ascertaining the relative changes which occur during the growth of the jaws, in this way it was found that between the symphysis and the mental foramen an increase of an eighth of an inch is gained by the nine months' jaws over the foetal ones; and although additions are made to the lower border of the jaws, there is *relatively* a much *greater activity* shown in the direction of *alveoli*. He thinks it is owing to this difference of growth that the changes take place at different periods in the angle of the jaw; and suggests that if equal

additions were made to the base, the same relations between the body and rami would be maintained from foetal existence to old age.

Passing over *eruption* of the temporary teeth, the next point of decided interest is the absorption of the fangs of these teeth. On this he remarks: "Having latterly had occasion to devote considerable attention to the phenomena attending the absorption of bone and the wasting of the roots of the deciduous teeth, several conditions relative to absorption have come under my notice, which, as applied to teeth, had I think hitherto escaped observation. The cementum is first attacked, then the dentine disappears, and the enamel, at those points where the dentine has been entirely removed, suffers from the same action. But whichever of the three tissues attacked, we see the same characteristic surface as that shown by bone when undergoing similar action—namely, a surface full of deep indentations, as though they had been made by a sharp, piercing instrument, having a semicircular extremity. These minute holes or depressions proceed in various directions, several advancing from contrary points toward the same spot, not unfrequently isolated pieces of dentine. If a section be taken through the substance of a tooth, so as to cut the wasting part at a right angle, we shall find the surface acted upon to have an irregular festooned outline, so characteristic in appearance that, when once seen, it cannot fail to be again recognized."* He then describes a cellular mass found closely allied to this surface, and rather intimates, though he does not make the assertion, that this is the absorbent agent. After dismissing the theory that mere pressure of one tooth against the other has anything to do with the absorption of the first set, he remarks, a little farther on, that "the observations at present at our disposal are not sufficiently numerous and varied to admit of the deduction of any general law, as regards the power by which absorption of one tissue by another is effected. But I think they point strongly to the idea, that a cell structure, in an active state of development, is capable of appropriating or removing out of its way a matured tissue."

Nearly one hundred and fifty pages are devoted to the *irregularity* of the permanent teeth, and treatment.

On this subject it will appear somewhat singular to a very large portion of the profession, whose experience and observation have forced them to the opposite conclusion, to find the author denying, as he does, that premature removal of the deciduous teeth is a frequent cause of irregularity of the second set.

In the mechanical appliances employed in the correction of irregularity, many valuable improvements, advanced in the magazines, appear to have escaped his notice, as no allusion is made to them.

* Having made the absorption of the fangs of the deciduous teeth a subject of careful observation for a number of years, and during that period made many microscopical sections, we can confirm the accuracy of the above description.—ED.

Again: we cannot agree with the author in the conclusion he arrives at, where extraction is demanded in the treatment of irregularity—viz., “Supposing, then, a sound tooth must be sacrificed, there can be but little doubt that we should do wisely in selecting the first permanent molar.” The relative liability of these teeth to decay, to the contrary notwithstanding, we think it would be neither doing *wisely* nor doing *well* to sacrifice the large masticating surface of a sound molar when the difficulty could be corrected by removing a bicuspid, whose crown of course is but half the size.

In the second section of the work, the attention of the reader is arrested by the description of the discovery and manner of demonstrating the presence of nervous filaments in the dentinal tubuli. He says: “With proper care in manipulating, nothing is more easy than to demonstrate the existence of the dentinal fibrils in any tooth which has been recently extracted. If a thin section be made in a plane, parallel with the direction of the tubes, and then placed in dilute hydrochloric acid until the whole or greater portion of the lime is removed, and the section be afterwards torn in a direction transverse to the tubes, many of the fibrils will be found projecting from the torn edge. * * * * *

“If a section be taken in which the tubes are extended into the enamel, and submitted to the action of acid, it will be found that after the latter tissue has been dissolved fibrils will remain connected with the dentine at those points where the tubes penetrated the subjacent tissue. It is not necessary, however, to decalcify in order to show the fibrils. If a similar section to that already described be divided with the edge of a knife, many of these organs will be seen. * * * * *

“In order to demonstrate the connection of the fibrils with the pulp, fine sections should be made with a sharp knife from the edge of the pulp cavity. * * * * *

“That the fibrils proceed from the pulp may be seen by carefully fracturing a fresh tooth with as little displacement of the fractured parts as possible, and then, by slowly removing the pulp from its place in the tooth, we shall be enabled to examine the fibrils which have been drawn out from the tubes. By this procedure some of the fibrils will be withdrawn from their normal position in the dentine in the greater part of their length, a few of them retaining short lengths of their branches, but sufficiently long to show that they have come from the branches of the dentinal tubes.”

This description is accompanied by two admirable drawings of the appearance presented by the sections under the microscope. This discovery is one of great importance, as it confirms the theory entertained by many for years, that the sensibility of dentine is due to impression upon the nervous filaments in the tubes.

In considering dental *caries* he refers to the beneficial effects of the consolidation of the tubuli in arresting the progress of decay, and remarks: “It will be found that when the dentine has been rapidly destroyed, when,

in fact, the amount of softening is great, and the external indication but comparatively slight, when that which at first sight would appear to an unaccustomed eye a small cavity, is, on the removal of the disorganized tissue, found to be a very large one, that the consolidation of the fibrils has been imperfect or perhaps entirely wanting, and that there is coincidentally a high degree of sensitiveness under operation. Again, compare the foregoing case with one in which the destruction has been comparatively slow and the extent of the disease more limited, and it will then be seen that the evidences of consolidation are in the *former very slight*, and in the *latter very abundant*. It will, in fact, be found that the rate at which the disease advances will accord with the amount of consolidation; in other words, the restrictive efforts of nature will to a great extent determine the rate of decay."

With regard to the *treatment of dental caries*, and the different materials for filling teeth, he advocates the moderate use of amalgam in place of the indiscriminate employment that has been made of it; but, judging from the number of formulas presented, one would suppose that it is used very liberally. He then describes the different forms of gold for filling, mode of preparation, instruments employed, and methods of operating, that are familiar to all, and advocates capping the nerve with quill when it is only slightly exposed. We cannot agree with some of the views advanced, at this part, but having given utterance to our objections quite recently, deem it inexpedient to reiterate them now. He acknowledges that his former objections to the employment of the arsenical paste when the destruction of the pulp is indicated, have been overcome by a later experience, and now advocates its use. The remarks on *exostosis*, and the specimens presented, are highly interesting; but it is a matter of regret that no suggestions are advanced to assist one in diagnosing the disease. Several cases of absorption of the fangs of the permanent teeth, with illustrations, are also presented. Passing rapidly over succeeding portions of the work, we close this notice with the following excellent advice on the extraction of teeth: "The beginner should be impressed with the necessity of laying hold of the tooth as far down toward the fangs as the instrument can be passed. An old and successful operator, when instructing another in the use of forceps, said, 'Push the jaws of your forceps into the socket as though you intended they should come out at the top of the head or under the chin.'"

We feel no hesitation in recommending this as an ably written and valuable work, containing much original matter that cannot be found elsewhere, and calculated to enhance the reputation the author has already established of being an original, pains-taking, and careful observer. We trust that it will meet with a large and extended circulation among the profession here and elsewhere. The letter-press, illustrations, and binding are excellent, and reflect much credit upon the publishers.

INAUGURAL ADDRESS DELIVERED AT THE OPENING OF THE METROPOLITAN SCHOOL OF DENTAL SCIENCE. BY BENJAMIN RICHARDSON, M.D., Lecturer on Anatomy and Physiology to the School.—This admirable address, originally presented in the *Dental Review*, (London,) and from which extracts were made for the February number of the DENTAL COSMOS, we find by a copy received from the author, has been published by request in pamphlet form. Dr. R., in dedicating it, as he has done, to our fellow-countryman, Prof. C. A. Harris, pays a just and deserving tribute of respect to one who, for nearly a quarter of a century, has labored earnestly and efficiently in the cause of dental science.

DENTAL ENTERPRISE—JANUARY.

“ADVICE TO A STUDENT OF MECHANICAL DENTISTRY.—*Preparation of the Mouth.*—Few more troublesome annoyances will present themselves than the difficulty of inducing your patients to submit to proper preparatory treatment of the mouth. For many of the troubles hence arising the dentist should be blamed; and for *all* of them he certainly *will* be blamed. It may be inconsistent and unjust in patients to censure the dentist for the results of a practice adopted, against his better judgment, upon their promise to ‘assume all the risks.’ And yet it is right that a community should hold a professional man responsible, if, from weakness of purpose or fear of ‘losing a case,” he permits himself to be led into any species of malpractice.

* * * * *

“It is a safe axiom that no artificial denture should be placed over mucous membrane in a state of inflammation, acute or chronic. Of the varieties of such inflammation, their causes and treatment, I do not propose to advise you: two practical points only will be stated. First, such inflammation, around teeth or fangs, is usually aggravated by the presence of a plate. Secondly, if a plate is fitted to an inflamed mucous surface, it will cease to fit should the inflammation subside.

“It is proper to insist upon the extraction of such teeth as are loose in their sockets, either from alveolar absorption or periosteal inflammation: especially if such teeth adjoin the spaces to be supplied with artificial teeth. The same rule applies to teeth so far decayed that they cannot be filled, and which either are or soon may become sources of pain and annoyance. It is impossible, however, to enumerate the variety of cases of this kind.

* * * * *

“Another preparatory step, often perversely resisted, is the extraction of roots. Where all the teeth are lost, never permit a single root to remain. In partial pieces allow no roots to remain under or near the plate. One exception to this rule is in case of from one to three roots of front teeth remaining between sound natural teeth. If such a root is healthy, and admits of being filled to the end of the fang with gold, a plate tooth may be set upon it, having all the natural appearance of a pivot tooth, with none of the objections peculiar to this last style of work. Sometimes teeth are found with the crowns completely worn off and the roots firm, the nerve cavity obliterated, and the gum around the root in a perfectly healthy condition. A tooth or plate might be placed over such fangs with very much less risk of giving trouble than in ordinary cases.

Still the rule above given is much the safest to follow, with the single exception named.

"In the extraction of teeth or roots, it is desirable to mutilate the alveolus as little as possible, with a view to securing a regularly shaped ridge. The breaking away of the *thin* edges of the alveolar walls is not of much moment, as these become ultimately absorbed: but careless or rough operators sometimes break away large pieces of bone very unnecessarily.

"The permanent shape of the ridge results from absorption and deposition of bony structure—by the latter the sockets are partly filled up; by the former the alveolar walls are more or less completely removed. The time occupied by this process varies from ten to twenty months, according to age, constitution, and general health. As a rule, it is most active in the young and healthy. It is often found to continue, in slight degrees, for years, but it is in nearly all cases sufficiently complete for the insertion of permanent work at the end of twelve months. If a first (temporary) piece is worn, the absorption goes on more slowly and for a longer time.

"Not only is the absorption which takes place under a plate slower and more protracted, but it is less in amount and more irregular. Where no plate is worn after extraction, the uniform pressure of the food in mastication permits great regularity of absorption. This gives greater facility in adapting the plate; and again, an artificial gum can be used without giving that unnatural fullness to the lips so often complained of. Twenty years ago, when dentists were fewer and dental skill was less known and appreciated, such cases were very frequently met with. Mouths of most symmetrical regularity were to be had for the asking. But in these palmy days of dental science, when every fifth patient one meets wears porcelain for ivory, when the desire for a new tooth follows with impatient haste upon the loss of an old one, it is only now and then that alveolar absorption is allowed to take place in the old-time way.

"At the risk of being set down as an 'old fogey,' the dentist is required to put in the artificial teeth ere the blood from the extraction has quite ceased to flow. A very 'slow coach' is he, if he asks that the tender granulations in the alveolar cavities may have a few weeks' time to gain a covering of mucous membrane. And he is regarded as altogether behind the age if he ventures to suggest that a delay of several months has its advantages.

"Now, a piece of dental mechanism may be inserted a day, a month, or a year after the removal of teeth. In the last case (a year) your work will most probably be, if properly constructed, of permanent utility. In the second case (a month) it will probably require renewal, because of changes in the gum, which will destroy the fit of the plate. In the first case (a day) these changes are still greater, because absorption is much more rapid in the first month, growing less each succeeding month. In this case is still another difficulty arising from the tenderness of the gums, which makes the pressure of a plate extremely painful, often intolerably so. It will thus sometimes happen that by the time the patient has summoned up courage enough to wear the piece, the gum has so much changed that it has ceased to fit.

"Now I do not advise that you should set a fixed limit for the insertion of work, and compel all to conform to it. It is quite consistent with professional self-respect for you to consult, in this matter, the wishes of your patients. Some can be made clearly to see the advantage to themselves of delay, and will cheerfully wait. Others will suffer any amount of discomfort, rather than wait an hour longer than is absolutely required.

Your art should have resources to meet the demands of a sensitiveness to personal appearance, which, if often unreasonable, is the source of much of your business. But your duty to your patients, yourself, and your art, requires that you should state distinctly the arguments for or against delay. Let no fear of the case passing out of your hands induce you to state—for instance—that the insertion of teeth part way into the sockets will *hasten* the healing of the gums. Say, if you choose, that the early insertion of a piece will prevent that weary feeling, so painful in jaws that have lost the support of antagonizing teeth: but tell also the other side of the story, and let the patient decide understandingly.

"I will give you, in concluding the subject, a truly American remedy for American impatience, which will not wait the slow work of Dame Nature. The men of strong, hard, and firm nerve who practice it, tell us that if we only try it we shall be surprised to find how readily our patients will submit to it, and advise others to do the same. If you are in anywise tender-hearted, I recommend you to pause before you begin an operation which, perhaps, you may have to leave half finished. But, to speak of the operation itself, which proposes to dispense with the slow process of absorption. With a strong and sharp knife you pare down the alveolar ridge, (after extracting the teeth,) cutting with firm and steady hand through bone and mucous membrane. The work of months is done in a few moments. The plate is then fitted to the yet unhealed gum, and by spiral springs made to press firmly against it, regardless of pain, until, becoming gradually more and more firmly attached, it keeps its place without such assistance. Such practice is what surgeons call 'heroic.' But the heroes, in my judgment, are the patients who submit to, not the dentists who perform this cruel operation. I think it fortunate that, in such cases, the victims are mostly if not always of the gentler sex."

DEATH FROM THE ADMINISTRATION OF WHISKEY — "The wife of Julius M. Smith, Esq., of Concord, Mass., came to her death on Tuesday morning under somewhat singular circumstances. Wishing to have a number of teeth extracted, she desired the surgeon to administer to her whiskey, in order to render her insensible during the operation. After some objection, which was overruled, a tumbler and a half was administered during an hour. The teeth were then extracted, and for ten or twelve hours the woman presented only the ordinary symptoms of intoxication, except that, for a few minutes, she appeared like a person in an apoplexy, but soon recovered. About an hour after drinking the whiskey, she vomited freely, without pain or unusual difficulty. Her pulse and breathing (says the *Boston Traveler*) were natural, and the family and friends, who called in the course of the day and evening, felt no apprehension till 12 o'clock Monday night, when the doctor, who, feeling some anxiety in consequence of the symptoms of apoplexy manifested, had remained with her during the greater part of the evening, requested that another physician be called for the purpose of holding a consultation. Nothing, however, could be done, and she expired at about 7 o'clock Tuesday morning, without having shown any sign of returning consciousness, or of suffering. An effort, at the start, was made to have her take ether or chloroform, which she appeared to think would injure her; whereas it is probable these substances, particularly ether, would have proved powerless. She was about thirty years old."—*Phila. Press*.

PERISCOPE OF MEDICAL AND GENERAL SCIENCE IN THEIR RELATIONS TO DENTISTRY.

BY GEO. J. ZIEGLER, M D.

Experimental Pathology and Operative Physiology. The *Medical Times and Gazette* is publishing an exceedingly interesting and valuable series of lectures upon this subject by that celebrated vivisectionist M. CLAUDE BERNARD. These are well worthy of republication in full, but our space is too limited to permit of more than an occasional notice of that which seems most pertinent to the special purposes of this journal. Some desultory extracts will therefore be found in the present miscellany, while those remarks upon the salivary glands are here given entire.

"The properties of the salivary glands, as we have already stated, are the first object to which we shall direct our attention in commencing the experimental part of this course.

"Saliva is secreted by three principal glands, the functions of which require in each particular case a separate investigation. Each of them has, in fact, its own peculiar use, and its action, when interrupted, cannot be supplied by that of its congeners.

"As in the case of each gland a definite surgical operation is required in order to obtain in a state of perfect purity the liquid which it produces, I believe it to be indispensable that the precise anatomical notions which will enable you to repeat the experiment for yourselves should be laid before you at once.

"The parotid gland in the horse is situated partly beneath and partly before the external ear. The numerous ducts which arise from its granulations gradually coalesce into a considerable trunk, which, after descending for a certain space and then rising again toward the mouth, penetrates into the oral cavity in front of the second molar tooth. A curve is thereby described, the concavity of which embraces the ascending ramus of the lower jaw. The facial vessels and nerve, which pass over the duct, must be carefully avoided in dividing it. In order not to injure these important parts, the anterior edge of the masseter must serve us as a guide in performing the operation. Let the incision be carried along its lower third, and the duct will be at once discovered on the very point where it changes its direction and rises toward the mouth. It may there safely be divided so as to allow a slender tube to be introduced. The one we are about to make use of, is a small silver pipe containing a probe, which serves to clear it when obstructed, and makes it easier to be introduced. The excretory duct is then tied over the canula, just above the point where it has been introduced.

"(After demonstrating the operation on the head of a horse, M. Bernard performs the experiment on a living animal; not a single drop of saliva escapes at the moment when the tube is introduced into the ductus Stenonis.)

"The same proceeding is applicable to most of the herbivorous animals. The rabbit, however, offers a totally different arrangement: the ductus Stenonis in this species presents the same relations as in the dog; it therefore becomes indispensable to operate as in the case of this latter animal.

"The parotidian duct in the dog passes through the muscular fibres of

the masseter, and, following a direct course, opens into the mouth in front of the second molar. In order to practice the same operation as before, the lower edge of the zygomatic arch must be felt for and followed from its posterior to its anterior extremity; a slight depression will thus be discovered; at this very point the duct passes into the mouth. Let a horizontal incision be made over this point, the duct will be easily discovered; but the facial vessels and nerve, which lie before it, must be previously dissected with care, and then drawn aside with a curved probe; the duct immediately appears beneath them; nothing remains but to open it and plunge a tube within its cavity.

"(M. Bernard performs the experiment on a middle-sized dog. At the moment when the duct is laid open the animal utters a few plaintive cries. This proves, according to M. Bernard's remark, that the parotidian duct is sometimes endowed with sensibility, although the reverse is usually the case.)

"You see, gentlemen, that not a single drop of saliva escapes at this moment from the tube; in general the fluid is only secreted during the process of mastication and deglutition, or under the impression of acute pain, or of a powerful sapid sensation. You are well aware that various moral influences are capable of exciting its secretion; the fact is a well-known one in man, and can be equally verified in the lower animals. The horse which has just undergone the operation we have performed in your presence, has been fasting for several hours; the mere sight of his food will immediately bring on an abundant secretion.

"(A bundle of hay being brought in, the animal exhibits great excitement, and a jet of saliva flows from the tube.)

"Acids, however, are, of all the agents that can be brought to bear upon the salivary glands, the most powerful. Berzelius had remarked, several years ago, that alkaline secretions were excited by acid substances, and *vice versa*; now saliva, being an alkaline secretion, is likely to be elicited by the action of acids upon the gustative nerves, while alkalies remain comparatively inefficient.

"(The experiment is tried on a dog, into the parotid duct of which a tube had been previously introduced. A few drops of vinegar being poured into the mouth saliva flows from the tube drop by drop; an alkaline solution being then substituted, no sensible result is obtained.)

"Let us now examine the saliva we have obtained from both animals. In the dog, as you see, it is a limpid and colorless fluid, the reaction of which is strongly alkaline. But this is not always the case. We find in Tiedemann and Gmelin's great work on the digestive fluids, that after dividing the parotidian duct in a dog, they plunged its extremity into a small glass case, so as to obtain ten grammes (180 grains) of a viscous fluid, strongly resembling albumen in its general appearance. Such are, therefore, the properties which these celebrated observers acknowledge as characterizing the parotidian secretion—a conclusion widely different from that which we have just arrived at; and, in repeating the experiment on ten or twelve different animals, you would probably meet once or twice with the same result. How is this apparent contradiction to be explained? A peculiar anatomical distribution is its real cause. It sometimes occurs that, before opening into the mouth, the ductus Stenonis receives the excretory canals of two or three little mucous glands, which impart the properties of their own secretion to the parotidian fluid. Nothing is easier than to prove this. In the animals which offer this peculiarity let the duct be laid open above the point where it is joined by

these tributary canals, and the normal and unmixed secretion of the gland will be ascertained to be exactly similar to that which we have just exhibited to you. In man the anatomical peculiarity we have noticed as an anomalous exception in the dog, is normal. The parotidian saliva, as poured into the mouth, always, therefore, enjoys a certain degree of viscosity in our own species. In this respect we find the dog approaching closer to our own organization than other animals.

"As to the saliva obtained from the horse, you see it offers, on the contrary, a viscid appearance; as in the dog, its reaction is strongly alkaline; but the action of heat, or the addition of nitric acid, precipitate an albuminous substance, which appears to be peculiar to the equine genus, although its chemical composition has not yet been precisely ascertained.

"Let us now consider a few of the more important characteristics of the secretion itself, viewed apart from the nature of the fluid produced.

"A tube being introduced into the parotidian duct, in a living animal, it may be easily ascertained that the saliva only flows at intervals; in the horse, which during mastication emits prodigious quantities of it, the secretion now and then ceases in an abrupt manner, although the triturating process is still going on. The reason of this singular phenomenon long remained uncertain; we are now aware that the gland which lies on that side of the mouth where mastication is going on, almost entirely suffices for the insalivation of aliments; when the animal (as in the present case) has had both ducts laid open, and a tube passed into them, it becomes evident that during mastication, the two parotids are alternately called into action; while the one secretes, the other is at rest. The horse we have operated upon is at present satisfying its hunger, and you perceive that the saliva, however abundant, only flows on one side at a time.

"In the normal state the chemical composition of saliva, as secreted by each gland in particular, remains invariably the same; it may, however, accidentally contain foreign substances. We gladly seize this opportunity of exhibiting in a strong light, the elective action of glands: the secretion we are investigating at the present moment offers a remarkable instance of this singular property. Among the various bodies introduced into the blood, we find some which almost instantaneously pass into the saliva: iodine and its various compounds enjoy this property. Other substances cannot penetrate without the greatest difficulty into this secretion: the salts of iron belong for the most part to this latter class. A direct experiment will enable you to judge for yourselves. The crural vein of a dog being opened, the extremity of a small syringe is introduced into the vessel; a determinate quantity* of a solution containing 1-100th part of the yellow prussiate of potash is then injected into the torrent of circulation, together with an equal amount of a similar solution of iodide of potassium: this latter substance will almost instantaneously be met with in the animal's saliva, while none of the usual tests exhibit the slightest vestige of the yellow ferro-cyanuret of potash. In the animal's urine we shall, on the contrary, discover it in considerable quantities; a fact which amply demonstrates the penetration of this substance into the system, although the salivary glands refuse to eliminate it.

"(These various experiments are all tried on the dog, and meet with perfect success. It is necessary, before employing the usual tests, to neutralize, by adding a few drops of acetic acid, the alkaline reaction which

* Five cubic centimetres.

saliva naturally presents: the chemical actions might otherwise be impeded.)

"You therefore see, gentlemen, that iodine and its compounds will readily pass into the saliva, while the principal salts of iron are not to be found in that fluid, under ordinary circumstances. We possess, however, various means of overcoming the resistance (so to speak) of the salivary glands. If, in the first place, we combine one of the refractory substances with another body that enjoys the property of passing into the saliva, the difficulty is overcome: iodide of iron, for instance, passes readily into the saliva on account of the iodine it contains.

"In the second place, if a direct injection be had recourse to, the salivary glands may be compelled, as it were, to eliminate the obnoxious substances. The largest doses of prussiate of potash may, for instance, be poured into the animal's veins, without giving the slightest indication of its presence in the saliva, even when recourse is had to the most sensible tests; but if, by means of an injection into the common carotid artery, we create, in a manner, a local plethora in the atmosphere of the salivary glands, we succeed in obtaining the desired result, which, under any other circumstances, we should invariably have failed in producing.

"It therefore remains an established fact, that the so-called affinity of glands for certain bodies, only expresses the greater facility with which they gain admittance into the fluid secreted: all substances are capable of passing into the secretions, provided that a sufficiently large quantity of them be conveyed into the blood that furnishes the elements of these various fluids.

"The affinity of the salivary glands in particular produces, however, a great many singular phenomena. If, for instance, iodide of potassium be administered to a dog, vestiges of that substance will be discovered in the saliva for several weeks together. A sort of *circulus* is, in fact, established; iodine passes into the saliva through the elective affinity of the glands; but the animal, which keeps on swallowing its own saliva, impregnated as it is with iodine, absorbs new quantities of the substance, and the process might last indefinitely; but if the animal be strongly purged, the iodine is at once evacuated by the intestinal discharge, and appears no longer in the saliva.

"It now remains for us to perform the inverse experiment. The internal surface of glands is endowed with a considerable power of absorption, provided the substances injected into their cavity belong to that class of bodies for which the gland exhibits a certain elective affinity. But when the secreting process is in full activity, absorption is almost entirely suspended; thus (as we have already informed you) if a strong solution of strychnia is injected into a dog's parotid duct, the animal is almost instantaneously poisoned if the gland is in a state of rest; but if the secreting powers have been previously called into play, the animal resists for a pretty long space of time.

"In order to convince you of the rapidity with which absorption takes place in the glands, we shall now inject into the parotid duct of the horse which has already served for our previous experiment, a solution containing 1-100th part of iodide of potassium; the duct being then tied over the canula, we shall almost immediately discover iodine in the secretion of the parotid on the opposite side—a fact which proves that after passing through the vast extent of the entire circulatory system, the substance injected has been eliminated again by the glands in an incredibly short space of time.

"(The experiment is tried on the horse, and succeeds perfectly. The reactions of iodine are not, however, distinctly perceived before a few seconds have elapsed after the injection.)

"You see, gentlemen, that although rapid, the elimination has not been altogether instantaneous; but in the horse the circulation is known to be particularly slow; by injecting prussiate of potash into the jugular vein, and testing the blood drawn from another point, Hering has proved that in this animal the blood does not accomplish its entire circuit in less than twenty-five seconds—a fact which sufficiently accounts for the comparative slowness of the process of elimination. In the dog the same result would be more rapidly attained.

"It now remains for us to examine the part which devolves upon the nervous system, in the process of secretion, as exhibited in the parotid glands; and this will, accordingly, form the principal subject of our next lecture on Operative Physiology."

On the Chronometry of Life. Braithwaite's *Retrospect* for January contains a long and instructive paper upon this subject, by JAS. PAGET, Esq., F.R.S., from which we make the following interesting extract:—

"The design of this discourse is to illustrate the law that the processes of organic life are regulated with a regard to time, as exact as that which is observed by them in respect of size and weight and quantity of material employed by them; and to show that such an observance of time is characteristic of life, depending essentially on properties inherent in the living bodies themselves, and not on conditions external to them. Laws indicating the limitation of the organic formative processes, in respect of quantity, are evident in the facts that, in the ordinary conditions in which each living being is found, it and all its parts have appropriate size and weight and mutual proportion. These may, indeed, be modified by the variations of external conditions, or by events that are of the nature of accidents; but the range of possible variations is, in nearly all cases, comparatively narrow; and the boundaries are soon reached, in which changes of external conditions become incompatible with life. An instance of corresponding limitation of the organic processes, in regard to time, might be noted in the natural duration of each creature's life. It is, indeed, not possible to assign any exact number of hours, days, or years, as the constant limit of life in any species; but it is enough to prove a law of time, as limiting the total duration of the organic processes in each, when we see that, in man, and in other species, the length of life, when not diminished by disease or violence, is as fixed as the natural weight or stature is, and that the term of life is marked by changes whose source is inherent in the living body. Watching these changes in the senile degenerations of the human body, it is evident that life does not cease, naturally, because of any change in the external conditions of living; and that the body is not, with advancing years, gradually worn out, as if there were a gradual consumption of a store of material or of force; but that as, at a set time, the development of the body ceases and growth goes on, and then growth ceases and the body is only maintained in its perfection, so, after a time of such maintenance, the method of the formative processes in the body changes, it slowly degenerates, and through degeneracy dies. And all these stages are alike natural, constant, timely; all, too, are together, characteristic of life; there is no such succession of events to be traced in any form of dead matter. Observance of time may, again, be noted in the formative processes concerned in any of the

organs whose changes mark the divisions of a life into its chief periods; *e.g.* in the teeth. Considering merely the conditions in which the teeth of the first set are placed before they project from the gums, there appears no reason why one should be cut before the other, or why they should not all grow with equal speed. Yet while they all grow alike in regard of structure and composition, they have very different rules in regard to the time-rate of their formation. And a yet more marked instance of time-regulation is in the contrast of the teeth of the first set with those of the second. In all essential characters, except those of strength and size, the two sets are much alike; yet there is the widest difference in the rates at which they are formed, and in their duration. The second teeth require as many years for their formation as the first require months; the first live but a few years, the second should live as long as the rest of the body, and sometimes do so. Now there appears nothing to which, as to an efficient cause, this difference can be referred. Its utility and final cause can be discerned; but, as to that which verily determines the rates of growth, and the durations of the teeth, it can only be referred to a First Cause; or it may be said, as of other things subordinate to a First Cause, that it depends on some of those properties which each living being inherits from its parents, and through which it results that, in respect of time, as well as of method and quantity, the formative processes in the offspring are a repetition of those of the parent. The observation of the development and changes of the teeth affords, moreover, an excellent instance of the punctuality with which time-work is regulated in the organic processes, and of the manner in which several different, and really independent, processes, being set to the same time-rate, are made to co-operate to the end of utility in the economy. This is evident in the coincidence of the development of the teeth of the second set, with the removal of those of the first; and in the coincident growth of the jaw, and all its muscles and other apparatus for mastication. In all of these (and the same might be said of any other system of organs in any species) the formation of every part is achieved with an admeasurement of time as precise, and as perfectly designed, as that of its shape, or size, or structure."

"College of Dentists of England. Mr. Hulme gave his second lecture on the Structure and Development of the Teeth. The lecturer continued the description of the modifications of tooth-structure which are met with in the class of fishes. The teeth of sharks are composed of an outermost layer of fine dentine, largely impregnated with the hardening salts, and giving rise to the white, shining investing layer, usually regarded as enamel; beneath this, the pulp forms that kind of coarse, branching dentine so characteristic of fishes' teeth; the base of the tooth is converted into an irregular osseous structure, intimately connected with the mucous membrane, by which alone the teeth of these fishes are supported. The teeth of the rays were next illustrated by drawings of the microscopic appearance presented by the flat, tessellated-pavement-like teeth of the eagle rays. In a transverse section, each tooth is seen to be composed of numerous pulp processes, passing from the base to the grinding surface of the tooth, each surrounded by its special system of calcigerous tubes. The denticles, which thus form the compound teeth of the myliobates, are separated from each other by hexagonal interspaces; these are either transparent, or are filled up by bone-corpuscles, which maintain a communication between the different systems of calcigerous tubes.

"After describing the general characters of the teeth of the reptilia, the bones to which they are attached, their form and number, the mode of action and construction of the poison-fang in the venomous serpents, the lecturer observed that the modifications of structure exhibited by the teeth of the reptilia were far more uniform than those which were met with in the previous class. The teeth of serpents are composed of an exceedingly fine, compact dentine, the tubes even at their commencement measuring only the $\frac{1}{20000}$ of an inch in diameter, and are not separated from each other by more than two or three times their own diameter; the outermost layer consists of cement, which is most conspicuous on the roofs. In the crocodiles, the same compact dentine constitutes the principal mass of the tooth; the fang also is coated by a layer of cement, but on the crown there is a layer of almost structureless enamel, over which a thin layer of the cement is continued.

"Lastly, on comparing the reptiles with the fishes, the teeth are seen to be passing from the general to the special; their numbers are reduced, their position in the maxillary bones more determined, forming a gradual transition to that greater individuality which occurs in the mammalia, where each tooth has a definite relation to all the others, and in consequence of which its homologue or representative tooth may be traced throughout the entire series of these more highly organized members of the animal kingdom."—*Lancet*.

MISCELLANY.

The *Chemical News* says, on the authority of *Rep. de Chem.*, that M. Degousse has succeeded in beating out aluminum into leaves as thin as those obtained with gold and silver. The operation is attended with a certain difficulty; it is frequently necessary to temper the metal; this cannot be done, however, in the ordinary manner, as with silver and gold a very slight heat only must be employed. The beating is done as usual. These thin leaves of aluminum can be substituted for silver-leaf; the color is less brilliant than that of the latter metal, but, according to the author, aluminum-leaf is more durable, and may be employed with advantage for decorative purposes. The metal can also be obtained in very fine powder by means of these leaves. Aluminum in this state (beaten out into leaves) possesses a remarkable combustibility; it can be lighted with a taper like so much paper, and burns vividly with a brilliant white flame.

The same journal states that in the manufacture of india-rubber there is a great deal of waste, and that Mr. William Hooper hardens this waste material by heat, and then grinds it to powder, after which he adds a quantity of raw india-rubber or other substance, to make the powder adhere together, and a small proportion of sulphur. He then moulds the compound to any form desired, and heats it to make the hard or semi-hard substance formed by heating such mixtures. By mixing a larger quantity of raw india-rubber with the ground material, and employing less heat, a substance something like ordinary vulcanized india-rubber may be obtained.

In the course of some clinical remarks upon congenital cysts of the neck, at the Hôpital des Enfants, Paris, PROF. GUERSANT observed, (*Championnière's Jour. of Pract. Med. and Surg.*, Jan., 1860.) "It is an undoubted fact that in the fœtus, at the age of three, four, and five months, small tumors, some of which are genuine cysts, are found to exist

in various parts of the body, and chiefly in the cervical region. It is not improbable that these growths are the nuclei of the serous cysts denominated hydrocele, or cellular cystic hygroma of the neck, discovered after birth; but whether these tumors have originated during intra-uterine life, or subsequently to that period, they are nevertheless deserving of the attention of the practitioner. The cysts of the neck, described by various English and French authors, especially by Mr Hawkins, Mr. Lorrain, Mr. Jules Roux, among other remarkable features, are lined with a serous sac, analogous in consistency to the tunica vaginalis, and are filled by a liquid. The cavity may be single or multipartite; Drs. Guersant and Arnott have met with some shaped like a cluster, each division forming a distinct cyst. When the sac is unique, the fluid contained in its interior is usually of a serous nature; but when it is multilocular, the contents may be turbid or sanguinolent. In January last, Mr. Guersant admitted into his wards a little boy who presented a double-celled cyst; one of the cells was filled by a colorless fluid, and sanguineous matter escaped from the other on puncture. These tumors are occasionally the result of foetal inclusion, and contain teeth, hair, or embryonic remains."

"PROF. BUDGE has found" (*Virchow's Archiv.* and *Med. Times and Gaz.*) "that bodies may be admirably preserved for a long period of time, whether for anatomical purposes, or for courses of operative surgery, by injecting into the carotid a preservative fluid composed of pyroligneous acid and sulphate of zinc, of each from eight to twelve drachms to seven pounds of water. Bodies thus injected have kept during eight weeks of intense summer heat, without giving rise to any putrefactive smell, the muscles retaining their red color, and though a little softened, admitting of good dissection. The injection does not prevent the subsequent injection of colored matters; and the knives used in dissection scarcely suffer at all."

In the course of an instructive lecture upon the artificial production of disease, published in the *Med. Times and Gaz.*, Jan. 21, PROF. CLAUDE BERNARD observes that "It is, therefore, a fact, that the perverted state of the nervous system gives rise to a great variety of diseases, not only of a general, but also of a local character: deprive a muscle or bone of its nervous supply and you will have, as a consequence, fatty degeneration in the one case, and rickets in the other; in fact, if you tie the nerves which enter the nutritive foramina of a bone, you will very soon see the cells of the lamellar structure increase in size, the vessels become more numerous, and all the phenomena of rickets follow in rapid succession: we can even bring about these results on *part* of a bone, without interfering with the remainder. This experiment has been successfully carried out, in the case of the lower jaw, by M. Schiff of Berne."

In another lecture (*Ibid.* February 4,) in treating of the susceptibilities of different organisms of the same as well as of distinct genera, he says: "There exist within the limits of health considerable differences between living beings, and, as we have previously established, these various properties are not merely the result of organization, but frequently depend on the condition in which the animal has been placed. Not only do the various species of animals differ in this respect; but even individuals belonging to the *same* species are so far from resembling each other, that they cannot be submitted to the same experiments. So exquisite is the nervous sensibility of dogs of the higher breed, that the slightest operations bring on fever, and are attended with alarming symptoms; they

cannot, therefore, be employed in researches connected with the gastric juice, the pancreatic secretion, etc.; in fact, all operations performed within the abdominal cavity are liable to superinduce peritonitis in these highly sensitive animals, and generally prove fatal. In dogs of a more vulgar class, how different are the results of similar experiments! During the operation, the animal hardly attempts to move, and scarcely seems to suffer; the appetite remains unimpaired, and the secretions normal; in short, the various functions of the economy pursue their natural course."

Again, in treating of the relative susceptibilities of the same organism at different times and in different conditions, he observes: "It is a well-ascertained fact (*Ibid.*) that medicines do not act on sick people in the same manner as on persons in the full enjoyment of health. Now, the biological conditions superinduced by disease evidently lie at the root of these irregularities. To adduce a well-known instance of this, wine, brandy, and ardent spirits—so freely used by certain American physicians in the treatment of low fevers, remain apparently without effect on the patient, even when administered in quantities which, in a state of health, would inevitably produce intoxication. A twofold explanation of the fact presents itself—Firstly, the process of absorption is almost entirely suspended; secondly, the nervous system is strongly depressed. You are, of course, aware that in cases of typhoid fever, the absorbent powers lie dormant for a long space of time; a fact established by the following experiment: If small quantities of prussiate of potash are dissolved in the patient's drinks, no vestige of this substance is discovered in the urine, or in any other secretion. A similar state of things may be physiologically superinduced; for where secretion is over-excited absorbent surfaces lose their properties. The inner surface of the salivary gland which, in a state of rest, rapidly absorbs strychnia or woorara, ceases in some measure to do so when secretion is going on. Five cubic centimetres (one-third of a cubic inch) of an aqueous solution, containing one-hundredth part of strychnia, being injected into the parotid duct in a dog, the animal was almost instantaneously killed. The same experiment being tried on another, in which secretion was kept up by means of galvanism, life was protracted for the space of twelve minutes."

M. MAISONNEUVE has adopted a new mode of removing naso-pharyngeal polypi, which he calls "*boutonnière palatine.*" "It consists (*Comptes Rendus* and *Half-Yearly Abst.*) in making a button-hole-like incision in the soft palate, and in drawing the polypus through this opening into the mouth, where it is an easy matter to apply a ligature or to use the knife. The great elasticity of the parts composing the soft palate allows the polypus to be drawn through a comparatively small opening, and after the operation is completed, the same elasticity will generally serve to close the opening without the help of sutures. The direction of the button-hole is from before backward. M. Maisonneuve has already performed the operation, and with the most satisfactory results."

DR. F. GRACE CALVERT lately read before the London Society of Arts a very valuable paper upon the manufacture and uses of starch, an abstract of which is given in the *Scientific Amer.* March 3 and 10, from which we make the following extract: "An interesting application of starch has lately been made by M. Sorel, by which an artificial substance is produced, capable of being a partial substitute for horn, ivory, and gutta-percha. This new plastic material is made by mixing potato starch with chloride of zinc, in a solution of such a strength as will swell it out

without dissolving it. The mass afterwards becomes hard and tenacious. To this some sulphate of baryta, in powder, is added, which renders it tough. An oxyd of zinc will effect the same object, but the latter renders the composition opaque, while the former does not affect its translucent appearance."

The same journal says that "an alloy composed of 53 parts copper, by weight, 17 nickel, and 13 zinc, makes a very good imitation of German silver. Another white alloy is composed of 20 parts copper and 80 parts Banca tin. You must be very careful in casting it, so as to permit the air to escape from the moulds when the molten metal is poured in; because if the air is not permitted to escape freely, the casting will be full of blisters."

It also notices the invention of a new soldering iron, by A. Burbank, of Brooklyn, N. Y. It is constructed in such a way that gas is introduced into the implement and burned at the exterior of the same, so that it may be heated more economically and with greater facility than by the usual method.

"The perchloride of iron (*Gaz. des Hôp.* and *Pacific Med. and Surg. Jour.*) has silently received scientific baptism, and its future is settled by the concurrence of the medical profession itself. It is astringent, sedative, tonic, detersive, antiseptic, and neutralizing."

The *Med. and Surg. Reporter*, in the course of a notice of one of DR. CARNOCHAN'S contributions to operative surgery and surgical pathology, states that he reports two cases of restoration of the entire upper lip, which are interesting from their complete success, but present no novelty in the method of operating.

In reply to a correspondent, the editor of the *Am. Druggists' Circ.* says, that "the very best solvent for gum elastic is *caoutchoucine*, obtained by the destructive distillation of the gum. This substance is the lightest fluid known, and yet its vapor is denser than the heaviest of the gases. Mixed with alcohol it dissolves all the resins, especially copal and india-rubber, at the common temperature of the atmosphere. We believe that the most valuable patent is based upon the application of caoutchoucine as a solvent for india-rubber, which enables the workmen to mould the gum into any desired size and shape. Ether, chloroform, and bi-sulphuret of carbon, are also good solvents for gum elastic."

He also states that the following recipe furnishes an adhesive compound, suitable for various purposes: "Take of finest pale shellac, 4 ounces; strong alcohol, 8 ounces. Digest together in a corked bottle, in a warm place, until dissolved. It should have the consistence of molasses. The 'Liquid Glue' generally sold is prepared as follows: Take of best pale glue, 1 pound; water, 2 pints. Dissolve in a covered vessel by the heat of a water-bath, cool, and add gradually acetic acid, 7 ounces; when cold, put in bottles of a convenient size."

In relation to the new alloys of platinum, the *Am. Jour. of Science and Arts* says: "We recall the interesting researches of Messrs. Deville and Debray on this subject only to mention their industrial applications. Hitherto it had been supposed that the presence of iridium impaired the quality of platinum, but the labors of Deville and Debray have shown that, on the contrary, alloys of these two metals may be prepared which are greatly superior to pure platinum, presenting greater strength and rigidity, and resisting better both heat and acids. Thus the alloy con-

taining 21.3 of iridium is highly malleable, and scarcely attacked by aqua regia. As the quantity of iridium is less, the alloy becomes softer, and one containing 10 or 15 per cent. is peculiarly fitted for chemical vessels. These alloys are now largely wrought in Paris; retorts for the manufacturers of sulphuric acid have been made, having the strength and rigidity of rolled iron."

In the course of an interesting abstract of DR. KUECHENMEISTER'S report on the Animal Parasites of the Human Body, (*Cleveland Med. Gaz.* Feb.,) DR. C. A. HARTMAN notices the case of "a joiner, thirty years of age, who came to one of the hospitals in Vienna with what was thought to be a cystiform pseudoplasm behind the right lower jaw-bone. Splitting the swelling, Prof. Schuh discovered the white surface of an echinococcus, which was extracted without trouble."

Notwithstanding the doubts upon the subject, it has been experimentally shown that anæsthesia may be produced with great certainty during sleep, though some care is required in order not to disturb the sleeper. This may prove of practical importance in admitting of operative interference in those rare cases in which it could not otherwise be tolerated. In addition to other evidence, to prove that persons may be thus unconsciously anæsthetized, DR. J. H. BEECH reports (*Pen. and Ind. Med. Jour.*, Feb.) several successful cases. He relates a case in which, after various ineffectual efforts, he removed, by means of a "strabismus forceps," a kernel of corn from the nose of a restive boy during the anæsthetic state thus induced, without any disturbance or knowledge of the patient, who continued to sleep till his usual hour in the morning, when he awoke under the impression that the offending body was still in his nostril.

It is stated (*Ibid.*) upon the authority of the *Maryland Jour. of Phar.*, that WILLIAM S. THOMPSON, of Baltimore, has ascertained that water, which has had its organic impurity destroyed by means of permanganate of potassa before distillation, will afford a distilled water that will keep without depositing the flocculent matter that is usually found in that liquid when kept some time.

The following abstract of DR. G. HARLEY'S paper on Wourali is afforded by *Braithwaite's Retrospect*: "Wourali poison is a direct sedative to the muscular system, causing complete relaxation of fibre. It is a direct antidote to strychnine. It does not appear to have been used in poisoning cases in the human subject, but Dr. Harley has succeeded in saving the lives of animals to which strychnine had been administered in poisonous doses. M. Vella, of Turin, has successfully used woorara in cases of tetanus at the French Military Hospital during the late war. In one case, which proved successful, two grains of woorara were dissolved in nine drachms of water; and compresses moistened with the solution were applied to the wound, the strength being gradually increased to fifteen grains in fourteen drachms of water, and the compresses renewed every third or fifth hour. This mode of treatment requires and deserves extensive trial."

DR. SIMPSON, of Edinburgh, has introduced a new method of arresting surgical hæmorrhage by a process which he designates "*acupressure*." "It consists," according to the *Med. Times and Gaz.*, "in passing a needle, or some sharp-pointed metallic body resembling a needle, twice through the substance of the wound, so as to bring together and close, by the middle portion of the needle, the coats of the severed arterial tube, at a

distance of from one to two lines on its cardiac side; the only part of the needle which is left exposed on the raw surface of the wound being the small middle portion of it which crosses and compresses the vessel. The sojourn of the needle in the flap requires to be but of short duration, it being regulated, however, by the supposed adequate closure of the severed artery to which it is applied. This closure generally takes place, according to Dr. Simpson, on the second, or at furthest on the third day, at the end of which time the edges of the wound can be approximated to the entire exclusion of anything like a foreign body, thereby affording the best chance of union by the first intention, which is so rarely observed to take place when ligatures are had recourse to. In order to produce the necessary amount of pressure, so as to permanently close the bleeding vessel, a resisting body is required for the needle to rest against. This resisting body is, according to the author of this new method, found, firstly, in the walls and tissues of the wound itself; secondly, in a bone in the neighborhood of the bleeding artery; and, failing these two, it may become necessary to introduce a second needle, to serve as a point against which the desired compression is to be made."

The *Lancet* says that MR. ADAMS exhibited to the Pathological Society of London "casts and preparations to show the increase of scars in children by growth *pari passu* with the growth of the rest of the body, a scar of two inches increasing to three in the course of a few years."

It also states that "the Crown having, in pursuance of the provisions in the Medical Act, granted a charter to the 'Royal College of Surgeons,' empowering it 'to institute and hold examinations for the purpose of testing the fitness of persons to practice as dentists, and to grant certificates of such fitness;' and directing that the 'Board of Examiners in Dental Surgery shall consist of six members, three of whom shall be members of the Court of Examiners of the College, and three others of them shall be persons skilled in dental surgery;' the Council of the College of Surgeons having established the by-laws and regulations necessary for carrying out such examinations, met on Saturday, the 18th inst., when the following gentlemen were elected members of the Board of Examiners in Dental Surgery—viz., Mr. William Lawrence, F.R.S., Sergeant-Surgeon to the Queen; Mr. Joseph Henry Green, F.R.S.; Mr. James Moncrieff Arnott, F.R.S., President of the Royal College of Surgeons, Surgeon in Ordinary to his Royal Highness the Prince Consort; Mr. Thos. Bell, F.R.C.S., Lecturer on Dental Surgery to Guy's Hospital; Mr. John Tomes, F.R.S., Surgeon-Dentist to the Middlesex Hospital; and Mr. Arnold Rogers, F.R.C.S., Consulting Surgeon-Dentist to St. Bartholomew's Hospital."

BIBLIOGRAPHICAL.

American Medical Monthly and New York Review. Edited by J. H. DOUGLASS, M.D., and AUSTIN FLINT, Jr., M.D., assisted by E. H. PARKER, M.D., and L. H. STEINER, M.D. We see it announced that the *American Medical Monthly* and the *New York Monthly Review of Medical and Surgical Science*, two of the ablest medical periodicals published in the neighboring city of New York, are consolidated, and will be hereafter issued under the title given above. As it will be conducted jointly by the editors of the former publications, it cannot fail to maintain the high character of its progenitors, and give satisfaction to its

subscribers. The combined journal will contain eighty or more pages monthly, at the moderate price of \$3.00 per annum, in advance.

Louisville Medical Journal. Edited by THOMAS W. COLESCOTT, M.D. This is a new and promising monthly, under the guidance of an old journalist who has the ability to think for himself, and the independence to express his thoughts. It contains sixty-four pages of useful matter and is published at Louisville, Ky., by John R. Timberlake, M.D., at \$3.00 per annum, in advance.

Anti-Tobacco Journal. It is a well-established fact, that tobacco is a most potent poison—it is, indeed, so powerfully depressing as to render its use dangerous even in the treatment of those forms of disease in which such an agent is indicated. Yet, notwithstanding its actively poisonous properties, and its injurious effects upon the human system, it is still so freely and generally employed as a luxury. This may partly be in consequence of the prevailing ignorance upon the subject, though probably in a great measure due to fashion and the force of habit. But as it is undoubtedly detrimental to the health of both the mind and body, and more or less rapidly destructive of life itself, its use should be discountenanced by every one interested in the welfare of the race. Among the various means which may be employed with advantage to diminish the use of this noxious agent, is the publication of works to exhibit its toxic properties and destructive influences. As an effort in this direction, therefore, we hail with pleasure the little serial before us, which is commenced as a quarterly, with the intention of soon making it a monthly. It is published at one dollar per annum, for three numbers of each issue, by Geo. Trask, of Fitchburg, Mass.

There is one thing, however, about this publication which attracts attention, and that is, the manifest incongruity between its object and the character of the design upon its title-page, which seems intended rather to encourage than discourage the use of the poisonous weed. We take the liberty, therefore, of suggesting, whether it would not be better to substitute an engraving representing sickness and suffering or something more appropriate than the present one, which is indicative of ease, comfort, and health.

The Hygienic and Literary Magazine. This is an octavo monthly journal of fifty-four pages, devoted to the hygienic, literary, and educational instruction of the people. It, therefore, embraces three departments, each one of which is under the immediate supervision of a special editor. DR. V. H. TALIAFERRO has charge of the hygienic, MRS. DR. RILEY of the literary, and we presume, though it is not so mentioned directly, M. A. MALSBY of the educational department. The first number looks well, and is replete with matters of interest to both the professional and non-professional reader; and hence is adapted to the office, parlor, or reception-room. It is published at Atlanta, Ga., by M. A. Malsby, at \$2.00 per annum.

Medical and Surgical Reporter. We invite attention to the advertisement of this excellent weekly in our last number. Its publication in Philadelphia—the medical centre of this continent—and frequency of issue, gives it unusual facilities for speedily acquiring, and rapidly disseminating, a knowledge of everything of importance that transpires in the medical world. It is edited and published by S. W. BUTLER, M.D., and R. J. LEVIS, M.D., at \$3.00 per annum, in advance.

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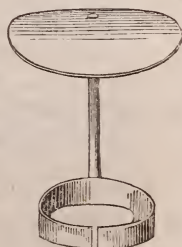
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PRACTICAL HINTS.

BY J. D. WHITE.

THE instrument, *Fig. 2*, in the last number of the DENTAL COSMOS, is held between the fore and middle fingers of the left hand, with the back of the hand upward from the right side lower jaw, the extremity of the handle extending back between the knuckles of those fingers, getting support from them when downward pressure is made to hold the napkins about a tooth while plugging. The thumb is at the same time extended under the jaw with a folded napkin to afford support both to the jaw and instrument. From the left side lower jaw the instrument is held between the tips of the fore finger and thumb, the handle standing outward; the arm is thrown over the head of the patient, the back of the hand is turned downward, supporting the jaw with the remaining three fingers with the usual napkin compress; but in examining teeth, it is held between the thumb and fingers like a pen. *Fig. 3* is an instrument that has been in use for many years; it is used on the fore finger of the left hand. It consists of an open band or ring to pass over the first joint of the finger, a wire shaft, two inches long, which can be bent to suit cases when it is required, and a plate at right angles to this shaft, about one inch long and half an inch wide. Now, it will be seen when the finger is passed through this band above the first joint, that by bending the finger there is room between it and the plate for the teeth: by this plate the napkin can be held down on the lingual side of the teeth, while the finger can hold it on the buccal side, the thumb is thrown below the jaw with a thick napkin

FIG. 3.



compress, affording support to the jaw as well as keeping it under the control of the operator. *Fig. 4* is an instrument consisting of an open

FIG. 4.



band and a kind of spoon-shaped blade, about one inch and three-quarters long and half an inch wide. This is placed upon the fore finger of the left hand and used on the left side of the mouth, lower jaw; the arm of the operator is thrown over the head of the patient, and with this instrument on the fore finger, passed back between the cheek and the teeth with a napkin, the buccal cavities of that side can be kept dry, and the cheek held out of the way without much strain on the mouth, as it is a kind of long finger; the three remaining fingers of the hand can be passed under the jaw with a heavy compress of napkins to give it support. The instrument, *Fig. 1*, in the last number of the DENTAL COSMOS, is used for the same purpose on the right side of the lower jaw when plugging buccal cavities. It is held between the ends of the fore and middle fingers, or with the thumb and fore finger, as the case may be, with the napkin. In making lateral pressure, if too much strain on the jaw is experienced, the patient can aid you by holding the hand with a napkin compress on the left side against the jaw. When the saliva is copiously discharged from the duct of Steno, a small napkin, five or six inches long and three wide, is wrapped around a small piece of whale-bone or watch-spring as long as the napkin is wide, which makes a roll about as thick as the little finger; this is placed back between the cheek and the teeth, with one extremity opposite and over the duct, and the other extending to the lower jaw; this shuts off the saliva from both the upper and lower teeth completely: the spring in the napkin holds it in its place. To suppress the flow of the saliva from the ducts under the tongue, this same simple appliance is placed under it; the patient throwing that organ upward, the spring adapts the napkins to the teeth beautifully; and in connection with the instruments already described, almost any mouth can be kept dry as long as an ordinary operation will last. These appliances may be used singly or combined, as the judgment of the operator may suggest, or the case require.

A NEW MODE OF PREPARING DIES FOR SUCTION PLATES.

BY A. G. COLEMAN, D.D.S.

I PROPOSE to describe a process for stamping suction plates. Although it may be familiar to some, yet I think there are others who, if induced to give it a fair trial, will abandon altogether the more general custom of employing lead and zinc for castings.

Dr. E. Carr, of Canandaigua, N. Y., from whom I learned this process, has employed it for years, and has met with entire success.

The material used for casts is an alloy of tin and antimony. The first male cast is made direct from the impression of the mouth. Single gum teeth or blocks may be employed, and their upper ends are covered by a rim which is turned during the process of swaging. In the first place, the impression cups employed are made of thick sheet tin, stamped between two dies of zinc and lead—a variety of sizes are obtained by using the same pair to stamp a number of cups.

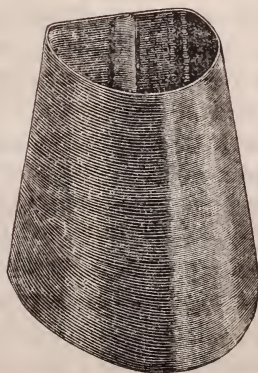
The objection has been raised to the cups not having handles, but a little practice will soon surmount this difficulty.

The impression of the mouth is taken with plaster, and the plaster employed should be prepared by calcining it in an iron pot (care being required not to raise the temperature high enough to scorch it) until all the water is driven off, when it will cease to boil; put it in wide-mouthed bottles while hot, cork it tightly, and keep for use. The plaster should be poured into a cup, and hot water added. The mixing and bringing it to its place in the mouth should be done as quickly as possible, for it is necessary to have the plaster rather thick. It is advisable to have an assistant to add the water to the plaster from a small pitcher while stirring; and when the cup is placed in the mouth, the assistant should elevate the upper lip before bringing the impression to its place, in order to get an impression of the anterior alveolar border as high up as possible. It is not necessary to employ either sulphate of potash or chloride of sodium to facilitate the setting. Impressions made of calcined plaster will stand the heat much better in drying than ordinary plaster, it being less liable to crack. When the impression is removed from the mouth, the superior edge should be trimmed down to the point it is desirable, for the plate to

FIG. 1.



FIG. 2.



cover the superior alveolar border; a notch should also be cut, in order that the plate shall not interfere with the Frænum Labii, (*Fig. 1.*) It

is better to use the impression as soon as possible, for it is less liable to crack in drying; but if left to dry, it should be dipped in water previous to using. The impression is now placed in a sheet iron collar about four inches long, (*Fig. 2*), a transverse section of which corresponds in shape to the rim of the impression cup. The collar is a trifle smaller at one end than the other, so that the castings may be more readily removed. It is necessary to have six or eight different sizes. The cups should enter the collar only about one and a half inches from the larger end, while the face of the impression is turned toward the smaller end. It is necessary to secure the impression in this position with half sand and plaster, mixed (rather thick) with water, and poured on the under side of the cup to the depth of about half an inch. Should the rim of the impression cup and collar not exactly correspond, the plaster will fill up the interstices.

The impression is now dried by placing the collar in a small charcoal furnace or stove, tipping slightly one side, so that the moisture may escape from the under surface. By removing the collar from the fire occasionally, and setting it on the polished surface of an anvil for a few seconds, the amount of moisture remaining is readily ascertained. When no moisture is deposited, the impression is sufficiently dry for the metal to be poured upon it.

The collar should either be set upon an old pair of castings, or on a small block of wood, so that the weight may come upon the plaster and not upon the rim of the collar; otherwise the metal, when poured upon the impression, would force it from its place. The whole space between the bottom of the impression cup and edge of the collar might be filled up with plaster, but it would require a longer time in drying out the moisture.

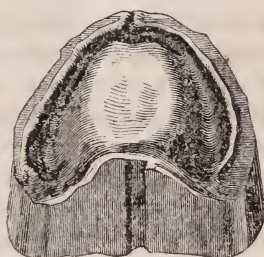
The alloy employed for making the casts is a mixture of four parts tin to one of antimony, by weight. Owing to the different degrees of temperature at which they will melt, it is necessary first that they should be melted separately, or the antimony may first be melted under powdered charcoal to prevent oxidation, and then the tin may be added gradually, while stirring the mixture. The metal should then be taken from the fire, and suffered to cool, in order to remove the charcoal from the surface. It is necessary to exercise care whenever the metal is subsequently melted, by taking it from the fire while yet a small portion remains unmelted, to prevent oxidation of the antimony. It is necessary as soon as the metal is poured upon the impression to commence stirring it with a small piece of hard wood until it assumes a granular condition. Smooth down the surface, and suffer the cast to cool before taking it from the collar; for when very warm the metal is quite brittle. By striking on the small end of the cast, it is easily removed from the collar with the impression still adhering.

By tapping on the cast, and with the aid of a small chisel, the cup and impression may thus be separated. Any small prominences or roughness should be smoothed with a graver, and the face painted with a mixture of French chalk, water or alcohol. When the cast is quite cold, (*Fig. 3*.) replace it in the same collar, and pour upon it the same metal for the female cast, (*Fig. 4*.) It is necessary to stir the metal only while making the first cast. To prevent the two castings from adhering, care

FIG. 3.



FIG. 4.



should be observed to have the metal, before pouring, so cold that it will hardly run, tapping on the collar, at the same time, to settle the metal to its place. Remove the first pair from the collar, and separate them by holding the male cast and tapping alternately on the side and bottom of the female cast; it will soon loosen and fall down. From the first male cast three female casts should be made; one for the first pair, and the other two should be filled for the second and third pairs. The last two should be used first to get the plate into shape, while the first pair, being a more accurate model of the mouth, is reserved for the last swaging. The male cast that is first used should be placed in a vice while warm, and with a chisel and mallet the outer rim should be trimmed off, so that the plate can be more easily brought into shape, previous to stamping down the edge which is to form the rim to cover the upper ends of the teeth. Frequent annealing of the plate is very essential. If coin gold is employed for plates, and properly annealed, few plates will be cracked. Silver plates can be stamped in the same way.

Among some of the advantages which this process has over those in more general use are, saving of both time and labor, besides getting a much better adaptation of the plate to the mouth. I have stamped plates fitting so closely that it was almost impossible for the patient to remove them before the teeth were attached. One of the principal advantages is the doing away with the air chamber. By slightly shaving off the impression in the centre, corresponding to the roof of the mouth, to prevent the plate from rocking, the whole roof of the mouth is converted into an air

chamber. When the roof of the mouth is spongy, plates stamped in this way are consequently preferable. Having the rim stamped to cover the upper ends of the teeth, much time is saved in gaining the desired fullness of the face, and grinding the teeth to fit the plate.

THE TREATMENT OF SENSITIVE DENTINE.

BY JNO. C. K. CROOKS, M.D.

YOUR observations in the March number of the DENTAL COSMOS, upon "Sensitive Dentine," meet with my unqualified approbation. Filling upon sensitive bone is too much disregarded by the profession generally. While it can be done with impunity, or without any apparent ill effects, the occasional destruction of the tooth, the production of permanent disease of the periosteum, facial neuralgia, etc., should constitute a warning which should be carefully treasured up by any conservative dentist.

The want of *uniformity* in the *results* of such operations are traceable directly to *constitutional impressibility*. Our experience has taught us that the most trivial accident in one individual will produce tetanus, while a frightful, lacerated wound, with serious injury to tendons and nerves, in another, is attended with no symptoms indicative of nervous disturbance. One may have the fortitude to sit quietly and endure the amputation of an extremity, without any perceptible shock to the nervous system; while a second will become completely prostrated, by a sudden yielding of the vital energies; and a third, less overcome, lose the natural nervous balance, and pass into a wild, hysterical condition.

When a medical student, I submitted to an operation for excision of a tumor, assisting my preceptor in its performance. I endured the pain of the operation, which was very severe, and which required something over an hour to complete, with a great deal of courage, never shrinking from my self-assigned position as "assistant." But when all was finished, and I was placed in bed, I had no control over myself whatever, laughing and crying alternately, like a hysterical female.

Why this difference exists we cannot tell. The *fact* is sufficient for us to know. While we cannot change a *natural peculiarity*, we can avoid those causes which in any case might result unpleasantly.

Then I have laid it down as an *axiom*, never to fill a cavity while the dentine is *much* sensitive. I say *much* sensitive, because we often meet with superficial cavities: for instance, cavities upon the crowns of the molars, just dipping down to the dentine, and where the excavation is not attended with much pain, even in the most susceptible, which, if filled *at once*, never show the least disposition to give trouble. But where the cavity has considerable *depth*, has extended *into* the dentine and is attended with *much* sensitiveness, I *never* fill it immediately, giving the

tooth the benefit of the doubt. My object is not to consult the convenience of the patient, not to take into consideration a subsequent visit to which he may be subjected, but to *save the tooth*, which can only be done with *certainty* by putting the tooth in a *good condition to fill*.

To destroy this sensibility, creosote, chloride of lime, arsenious acid, etc. may be used. When the sensitiveness is not extreme, and lasts only while the excavator is in contact with the dentine, the application of creosote or chloride of lime, even for a few minutes, or at the furthest for a few hours, is quite sufficient; but when the pain is considerable, and persists for a time *after* the infliction of the injury, it requires more than a superficial impression, and for that purpose I much prefer arsenious acid. Being but slightly soluble in the fluids of the mouth, it remains in contact with the walls of the cavity so long as it may be deemed necessary to retain the cotton upon which it is placed; thus securing a perfect removal of the sensitiveness by one or two applications, and consequently in the majority of cases making it necessary for the patient to return but once.

Having premised with the above, I will give you the history of several cases which have come under my own observation, illustrating the *bad* effects of filling cavities while the dentine is sensitive.

Case 1.—Mr. A. R. had a cavity, upon the left approximal surface of the right superior incisor, filled by an itinerant dentist. At the time of filling, the tooth was very sensitive, giving him a great deal of pain in excavating, although the cavity was not large nor deep. Immediately after filling, the tooth became generally tender to the touch, or when brought in contact with the other teeth; “felt much like having sustained an injury as from a blow;” was slightly painful, etc.

This condition of things continued for several weeks, the tooth in the mean time becoming a little loosened, when the accession of some pain, followed by tumefaction of the lip and gums, indicated the formation of an abscess. Calling upon a dentist, he obtained relief by the removal of the filling and the puncturing of the sac. After an interval of a month or two the patient called upon the gentleman who had given him so much relief, and requested him to refill the cavity. Upon excavation, it was again found sensitive, but was filled, as at first, without treatment, *save* to “drill the fang to give exit to pus, should suppuration take place in the future.”

Again the tooth gave indications of difficulty, but not so promptly and severe as before, until upon the expiration of several months a second abscess formed, for the relief of which I was consulted for the first time. I removed the filling as had been done previously, lancing the abscess *freely*. The cavity was quite small, and presented no unusual appearance, but the tooth was generally discolored, having that bluish tinge so

characteristic of absorption and a want of vitality. The above case is now under treatment, not with a view to perfect restoration, (which I look upon as quite impossible,) but to render the tooth "tolerable" for a time, by relieving, as far as may, the periosteal difficulty, and by refilling when the tooth can bear the pressure necessary to perform the same.

Case 2.—Mrs. C., residing in one of the interior counties of Virginia, visited Washington for the purpose of consulting a dentist respecting her teeth. It was found necessary to insert several fillings, among which was one in the left approximal surface of the right superior central incisor. At the time of filling, the tooth was remarkably sensitive, considering the small size and inconsiderable depth of the cavity; but, by great fortitude upon the part of Mrs. C., and the desire to have the work completed while in Washington, she was enabled to bear the suffering, martyr-like, and was gratified to be able to leave in a short time for her home. But "the tooth" would not remain quiet under all this ill treatment. It soon began to give evidences of trouble, became slightly loosened, was painful, and at last the alveolo-dental periosteum becoming so gravely implicated, an abscess formed, which found its way through the nasal plate into the nares, where it broke and discharged pus for a long time.

The abscesses continued to form till the lady became a resident of my place of business, when I was consulted and earnestly petitioned to "give relief in some way." I immediately removed the filling, (it being during one of these attacks of suppurative inflammation that I was called upon,) scarifying the gums *freely*. But resolution could not be effected under the old order of things; suppuration went on as usual. I found the filling well inserted and the cavity clean, the tooth being white and natural in appearance. The dentine was still somewhat sensitive.

It is now six weeks since the beginning of the treatment; the abscess has healed, and suppuration consequently ceased; yet the tooth is a little loose and still sensitive.

In this case, by judicious treatment, local depletion, etc., I hope to be able to save the tooth.

Case 3.—Mr. A. P. had a cavity filled upon the right approximal surface of the left superior lateral incisor. Cavity small, but the tooth was very sensitive when excavated. Was filled without treatment. As in the other cases, the tooth became loosened, the alveolo-dental periosteum taking on inflammation, which proceeded to suppuration. Application was made to me for relief. I removed the filling and treated the inflamed membrane promptly by *depletion*, not giving any attention to the cavity, save to keep a pellet of cotton in it, saturated with a weak ethereal tincture of creosote. After several weeks the tooth became firm in the alveolus, when I applied a little arsenious acid to the cavity, there being some sensitiveness remaining, and filled. It is now two years and a half since the treatment, and there has never been any indication of

returning trouble, although the patient is one of nervous temperament and of strong strumous diathesis.

The latter case is the history of quite a number which have come under my observation, and I am thus *compelled* to admit the truthfulness of your remarks upon "Sensitive Dentine." It is an injury of no small importance to inflict upon a tooth, *to fill when sensitive*. If the contact of the excavator is past all endurance, what should we think of the continuous pressure of a filling, which it has required thousands of pounds pressure to consolidate sufficiently well to make a "tolerable" filling?

MIDDLEBURG, VA.

PREPARING MOUTHS FOR ARTIFICIAL TEETH.

BY A SUBSCRIBER.

WHAT should an operator do when his patients will not have their mouths properly prepared for the reception of artificial teeth? For instance, a lady applies to us for a full upper set of teeth, and has all the fangs and teeth extracted, except the fangs of the wisdom teeth and one of the adjoining molars, and obstinately refuses to have these extracted, and requests us to insert her teeth under such circumstances and do the best we can, and she will be satisfied. I know not how it is with others, but such cases often occur in my practice, and as often resulting in unsatisfactory operations. Now, the question is, should we consent to operate for such patients? My own conviction is, that we should not; yet we may be censured for refusing. I should be happy to have your opinion on such cases; please inform me through the columns of the DENTAL COSMOS.

We would remark in answer to "A Subscriber," that we have on several occasions spoken of the preparation of the mouth for artificial teeth, but perhaps not directly to the point he desires. Such cases referred to occur to us daily, and we make no hesitation to place in the mouth a partial set of teeth; or, in other words, by leaving in the mouth the wisdom teeth or one or two more molars, and we always expect to and generally do give satisfaction. We cannot see any difference between setting a set of teeth with a few remaining, say one or three, in any part of the mouth, and setting one or three teeth with all the rest remaining; in fact this we are doing as a general practice all the time. We were once of the same opinion as "A Subscriber," that the mouth must be freed from all obstruction, when one or two teeth only remained; but when we became master, as we believe we are, of the use of the atmospheric plates, we never care how many teeth are in or out, as in that way we have set from one to a full set in every conceivable condition of the mouth, as far as relates to the number of teeth remaining or as to what position they may occupy.

J. D. W.

OSTEOPLASTIC.

BY J. WARD ELLIS.

I NOTICE that my inquiry in the January number of the DENTAL COSMOS for information respecting Pearson's osteoplastic, has called forth an article from the pen of L. P. Crane, M.D., of New York, so highly recommending the new preparation, that it may lead some who have not tried it for themselves, to conclude that it is really superior to all other materials as a filling for decayed teeth.

The Doctor says he has used the osteoplastic "constantly for the last six months," and that his "experience with it has been so perfectly satisfactory, that he has about abandoned gold and tin as filling."

Now, it seems to me, that "six months" is entirely too short a time to test fairly any new material for filling teeth; and more, to conclude that it is superior to gold. My own experience with osteoplastic has not been such as to convince me that it will be a durable filling. The results of my experiments are, that, if put where it is subjected to any friction, it will crumble; that it does not retain its color; that it entirely destroys the vitality of the tooth, leaving it soft and chalky; that I cannot fill a badly decayed tooth with it, (and I would not want to use it in a small cavity,) without producing intense pain for hours. In one instance, when I filled a badly decayed molar, the pain became so intense as to throw the patient into spasms.

A short time since a lady said to me that a certain dentist recommended the osteoplastic as being superior to gold, that she had it put into her teeth, but that it changed color, and crumbled; and as she paid the price of gold filling, of course she was not exceedingly complimentary toward him.

Osteoplastic may be useful for some things, but that it is even as good as *amalgam* for filling teeth, I am not ready to admit.

My object in writing the above has been to give the result of my own experience, and to deter others from recommending it to their patients until they are convinced that it will prove a durable filling.

CHICAGO, ILL.

PAINLESS EXTRACTION OF TEETH.

BY W. W. WHITE.

THE following case will illustrate how far the imagination of some people can be wrought upon.

About two months ago a young woman called to have the left lower wisdom tooth extracted; said she wanted it taken out the same way that I had extracted some for a Mrs. D., some four weeks previous, (meaning by

electricity.) I explained to her that my electric machine was out of order and would not work, which was the case; she was about leaving the office in pain and despair with her aching tooth, when, seeing my patient was a verdant one from the country, a thought suggested itself that by using a little stratagem I might perhaps extract the tooth for her, thereby relieve her of the aching member, and she be none the wiser of the deception practiced on her. I requested her to get into the operating chair and I would try and make the battery work. I then placed the machine with the battery in rear of the chair, where she could not see it, put on the connecting wires, gave her the metallic rod, requesting her to hold it tightly with both hands; I then placed the forceps on the tooth, and after allowing it to remain there for a few seconds, suddenly extracted it. She threw down the rod and jumped out of the chair perfectly delighted, saying that it did not hurt her a bit. I asked her if she was sure that it did not cause her any pain. She said, "Oh yes, doctor; I did not feel a particle of pain whatever." These are her own words. Messrs. Editors, there was no more electricity passing from the battery at the time than there is in the pen I now hold; but the case was a decided success. My patient was perfectly satisfied and I got my fee. So much for painless extraction of teeth.

CHATHAM, C. W.

A great many persons have teeth extracted without pain, but it proves nothing, except so far as their individual case is concerned; perhaps the next patient would suffer greatly. We have seen many such cases.

J. D. W.

DOUBLE TOOTH.

BY U. D. TAYLOR.

INCLOSED I send a drawing of quite a remarkable specimen of osseous union of a first superior molar and dens sapientiae, which I extracted for a gentleman the twentieth of last January. He (the gentleman) was about thirty-five years old. The molar had been filled about five years ago, in the centre of the crown, with amalgam; it was also decayed to the nerve on its approximal surface, so much so that I advised extracting.

I noticed the posterior cusp of the wisdom tooth pressing through the gum, and rallied the patient on just cutting his wisdom teeth. After extracting, however, the cause was quite apparent. The buccal roots of the molar were crowded together and firmly united not only to the buccal roots, but to the crown of the other tooth. The palatine roots



A, the roots affected with exostosis. B, the deposition of enamel. C, point of palatine root of the wisdom tooth.

of both were also firmly ossified—the dens sapientiæ being partially within and between the roots of the molar, its crown being about midway between the crown and points of the roots of the latter. The palatine roots of the molar were, their whole length and circumference, affected with exostosis, causing them to be nearly twice the natural size. On the extreme point of one of the palatine roots of the wisdom teeth was a small deposition of clear, white enamel, about the size and shape of a pin's head.

Taken altogether, I think this a rare and valuable specimen, and, as the patient remarked on first seeing it, "it is emphatically a *double tooth*."

FORT MADISON, IOWA.

LIGAMENTUM DENTIS.

BY J. F. CALDWELL.

IN the DENTAL COSMOS for February, in your editorial on page 362, you say, "it is believed by many that lancing the gum before attempting to extract a tooth is unnecessary;" to this you say, "we cannot agree, yet we do not at present intend to advocate the existence of *ligamentum dentis*;" yet you add, "we could detail a vast number of cases where dentists have failed to successfully extract a tooth from not lancing the gum sufficiently or not at all." Now, while we only disagree in part, in giving different names to the constituents composing the soft parts which surround the tooth, you name that gum which I designate as gum and ligament; you admit all that I have contended for, and that is, that this previous cutting allows the tooth to be extracted by the application of much less force than where the cutting is omitted. And this can be demonstrated to any one, however prejudiced and skeptical, by the suspension of weight to the tooth, before and after the severance, by cutting of the ligament which attaches the tooth to the jaw. A molar cannot be brought out of the jaw by the suspension of two hundred pounds, notwithstanding all of the surrounding gum may have been lanced away from the tooth; but less than one-third of that amount of weight will bring the tooth away after the *ligament* is severed. So very slight is the attachment of the gum to the tooth that any toothpick can detach it, and if the gum only is lanced, the tooth will require as much force to extract it as it would have done before the lancing of the gum. The ligament is covered by the gum between the teeth, and the alveolus need not be cut away to cut the ligament.

You state that you "do not extract a great many teeth." In this branch of our profession my experience from practice greatly exceeds yours; I suppose that I have extracted ten times more teeth from the living subject than any other person, having extracted upwards of 120,000, one-half of which were extracted in Philadelphia. But while I agree with

you that *no portion of the gum should be torn away* in the extraction, and I will go further and say that no part of the alveolus should be broken away, yet I must differ from you, if you imagine that any fracture of the alveolus interferes with the proper setting of artificial teeth on plate, which should not be attempted until all of the alveolus has become absorbed.

KNOXVILLE, TENN.

MOULDING FOR METALLIC CASTS.

BY C. SILL.

WHILE I acknowledge my great indebtedness for the valuable information which the DENTAL COSMOS always contains, I am sorry I have not been able heretofore to contribute to its literary support. At present, however, I have an item which, if it is thought worthy, you may give a place in your pages. It is something I have long desired and sought for in vain, until I discovered it in my practice; and as it is to me both novel and useful, I will present it for the use of the profession.

It is a plan to do away with moulding when getting up metal casts. To do this, I always use plaster of Paris for impressions, in partial sets as well as full cases, and have a duplicate to every case. The first I use when necessary for an articulating model; the second, when properly set and hard enough to remove from the cup, I trim as I wish to have it, and then place in a sheet-iron cup, formed in the same way I would tin or paper when making a plaster model, except that the sheet-iron is firmly pressed to the impression by the use of fine annealed wire. Then lute up with plaster of Paris so as to form a light cup, dry by gentle heat until all the water is out, melt and pour in the metal. In this way I have a perfect fac-simile ready for the counter model, which will be taken in the usual way. The most difficult shaped mouth may have as perfect a cast taken by this mode as the more favorable, without any risk of failure.

I have thus briefly attempted to give that which to me is a good thing, and if I have not been explicit enough, will answer any questions in relation to it.

PITTSBURG, PA.

ABSORPTION OF THE FANGS OF THE DECIDUOUS TEETH.

BY J. H. M'QUILLEN, D.D.S.

IN the various changes that occur during the successive periods of life in the different organs of the body, none are more remarkable than those presented in the development, growth, eruption, subsequent absorption of the fangs, and exuviation of the crowns of the deciduous teeth. Sub-

serving for a brief season important purposes of the economy, and then giving place to more durable organs, their strange eventful history present phenomena of the most singular and instructive character.

The object of this communication, however, is not to enter into a *minute* consideration of the successive changes that these teeth undergo in passing from the rudimental state to the perfected condition, but rather to take them at that point, and endeavor to account for the retrograde metamorphoses by which the perfectly consolidated dental tissues are removed.

Prior to advancing the views entertained by the writer of the cause of this removal, it may not be amiss to direct attention to the existing dental literature on this subject.

From the earliest period down to the present, this phenomena has attracted more or less attention, and various theories, more or less varied in their character, have been advanced from time to time in explanation of the process. Thus many of the ancients supposed that the milk teeth had no roots. Others conjectured that the crowns of the milk teeth separated from their roots, just as the horns of the stag fall from the head that bore them, and that the root then gave birth to a new tooth. "Fauchard and Bourdet attributed their removal to the action of a corrosive fluid. Bunon thought they were worn away by the rising tooth. Lecluse was of the opinion that when the process of their removal begins, their vessels cease to supply nourishing juices, and that they are broken up by a species of *maceration*, while Jordan believed it was both by abrasion and corrosion. Laforge, observing a fungiform or carneous substance behind the root of the temporary tooth, (which had, in fact, been noticed by Bourdet, and supposed by him to exhale a fluid possessed of solvent qualities,) gave it the name of absorbing apparel, and assigned to it the office of removing the root of the primary tooth. Delabare, who treated this subject at greater length, and apparently investigated it more closely, adopted the views of Laforge." Prof. Harris, in the last edition of his work, where the views above will be found *in extenso*, says: "The more he has examined the subject, (of the destruction of the roots of the temporary teeth,) the more fully he has become convinced, that it is the result of the action of this fleshy tubercle (carneous body of Laforge) upon them. And while its formation seems to be the result of the contraction of the dental sac and its appendages, for the purpose of effecting the eruption of the permanent tooth, it is especially charged with the removal of everything that would obstruct its passage." Fox attributes it to pressure of the crown of the permanent teeth upon the fangs of the temporary; but admits, further on, that it frequently occurs without such pressure, and then remarks: "These circumstances seem to prove that the absorption of the fangs of the temporary teeth is an action of nature sometimes independent of pressure

and it is a very singular circumstance, that at a time of life, when so great a quantity of ossific matter is poured forth from all the arteries concerned in the formation of bone, in one particular, there should thus be an absorption of this substance taking place." Bell rejects the theory of pressure, and attributes the removal to the action of absorbent vessels; he does not state whether veins or lymphatics perform the act. Nasmyth says: "The functions of the capsular membrane," or, as he styles it in another part of his work, the *capsulo periosteal membrane* investing the fangs, "are of great importance at the period when the temporary teeth are removed to make room for the permanent series, inasmuch as it is the agent by which the removal is effected." This view was also advocated in a paper read before the Odontological Society by Mr. Spence Bate. Tomes, after describing the microscopical appearances presented by the fleshy mass found under the absorbed surface of the deciduous teeth, remarks, a few pages further on, that "all recent observers will, I think, admit that the dental tissues are removed through the agency of the growing papilla, and I do not think a difference of structure or function, referable to the particular tissues from which it may have arisen, can be established." He says, in conclusion, that "the observations, at present at our disposal, are not sufficiently numerous and varied to admit of the deduction of any general law, as regards the power by which absorption of one tissue by another is effected. But I think they point strongly to the idea, that a cell structure, in an active state of development, is capable of appropriating or removing out of its way a matured tissue."

The above constitute the various theories that have been advanced or adopted at different periods by dental writers, in explanation of this phenomena. Numerous as they are, to those who regard with any favor the views at present entertained by physiologists generally, in relation to histogeny or the development and formation of tissues, these theories must appear most vague and unsatisfactory.

In entering upon the consideration of this subject, the teeth must not be viewed as isolated organs, but as integral portions of the entire economy, and subject to the same influences that control the function of nutrition in other parts of the organism; and it must be remembered that, though nutrition is not an object of microscopic observation, it is a well-attested fact, that, from the earliest period of foetal existence until the cessation of life, two operations are constantly taking place in the elementary structure of the various tissues and organs, viz.—1. *Composition*, or the process by which the nutritive materials of the blood become assimilated. 2. *Decomposition*, or that action by which old parts are removed. These (constituting the function of nutrition) occur in every part of the economy, modified, however, in their action by the age, constitution, state of health, and relative density of the different tis-

sues; being most active in youth, greatly lessened in old age; occurring with greater rapidity in vascular than in non-vascular tissues. As a general rule, the greater the demand for the functional activity of an organ or tissue, the more energetic its nutrition. The osseous and dental tissues being the lowest in the scale of vitality, the change is slow but nevertheless constant. Among the evidences of the renewal of the material of bones, are the formation of the cells, the development of the frontal and sphenoidal sinuses in childhood, the absorption of bones under the pressure of swellings, the absorption of the alveoli of the jaws, and the thinning of the cranial bones in old age, etc. The enlargement of the cavities of the bones, with enlargement of the whole bone itself, and indeed the mere growth of so solid a body by interstitial assimilation, and the changes that its form undergoes during it, are not conceivable without a constant removal of osseous particles from certain parts, and the deposition of similar particles at other parts; consequently not without a change of material.

As in the *development* and *formation* of the various tissues the primary active agents are *cells* previously existing in a structurless fluid called blastema, so in nutrition the end is attained by or with the help and continued energy of the *cells*; the materials of the nutritive process being present in the blood, *every tissue* and *every organ* attracts from it particles similar to itself. Nutrition, however, does not consist merely in the component particles of the organs attracting the fibrin, albumen, and other materials of the blood which flow through them, but the assimilating particles, through *cell agency*, must infuse into those newly added to them their own vital properties. Each *cell* that enters into the *formation* and *nutrition* of the different tissues is an independent organ, having a definite period of existence, and lives for itself and by itself, and is dependent upon nothing but a due supply of nutriment, and of the appropriate stimulus for the continuance of its growth and for the due performance of its functions until its term of life has expired.

In *decomposition*, or the continual waste which takes place in the tissues, and makes the supply of nutritive materials necessary, the drain is due to the continual disintegration, death, or destruction of the *individual cells* that have lived their appointed time. This death of the *cells* constitutes *molecular death*, in contradistinction to *somatic death*, or death of the whole body. In these cells *every tissue* in the body has within itself the elements of life and of destruction. Such being the case, the necessity of an acrid substance, or a carneous body, to effect the disintegration and removal even of hard substances such as the osseous and dental tissues, is not demanded; molecular disintegration fully accounts for it. The component cells having lived their appointed time, they degenerate, and their contents, assuming a fluid condition, are taken up by the venous or lymphatic radicals, neither of which

can be looked upon as capable of breaking down any tissue; for the vessels distributed to a part, be they arteries, veins, or lymphatics, are but the *conduits* or *carriers* of nutrient fluids to and waste materials from the tissues.

After the various organs have attained a definite size, as long as the two actions of *composition* and *decomposition* are harmonious, the repair being equal to the waste, the parts undergo no appreciable change of size or form; but if one or the other preponderates, *hypertrophy*, (due to excess of nutrition,) or *atrophy*, (due to deficient nutrition,) is the result.

Though generally regarded as the results of diseased action, either of these conditions may occur consistent with health. Thus the augmentation of muscle presented in the arm of the blacksmith or the leg of the ballet dancer, are familiar illustrations of normal *hypertrophy*. Exostosis of the fangs of the permanent teeth may also be mentioned as an instance of dental *hypertrophy*, which, though generally, is not always the result of diseased action.

As instances of *atrophy* occurring invariably in the body as the result of a natural order of things, the Wolffian bodies, the supra-renal capsules, the thymus gland, the ductus venosus and arteriosus (vessels which are important in carrying on the circulation of the blood in the fœtus) may be cited. These organs and vessels having performed duties, some of which, if not all, are essential to the life of the embryo, and being destined for a temporary purpose only, upon the cessation of their special functions dwindle or disappear. Thus no trace of the existence of the Wolffian bodies can be found after the fifth month of utero gestation; and the vessels so necessary to fœtal existence, after birth, shrink into ligamentous cords. The absorption of the fangs of the deciduous teeth, is but an illustration of *atrophy* of dental tissues, and the changes presented are analogous to the mutations that occur in the organs already referred to. The same causes that induce the one, effect the other. In each instance the explanation must be sought for in the modifying influences that control *nutrition*.

On this point, as Paget justly remarks, in order that the process of nutrition may be perfectly accomplished, certain conditions are necessary. Of these, the most important are:—

- “1. A right state and composition of the blood, from which the materials for nutrition are derived.
- “2. A regular and not far distant supply of such blood.
- “3. A certain influence of the nervous system.
- “4. A natural state of the part to be nourished.”

(To be continued.)

PROCEEDINGS OF DENTAL SOCIETIES.

PENNSYLVANIA ASSOCIATION OF DENTAL SURGEONS.

REPORTED BY GEO. T. BARKER, D.D.S.

A STATED meeting of the Association was held on the evening of April 3d, 1860, at eight o'clock.

President, Dr. Dillingham, in the Chair.

Present, Drs. McQuillen, Fitch, Buckingham, Githens, Hopkins, Harris, Goodwillie, and Barker.

Committee on membership reported in favor of the election of Edward Lukens, D.D.S., of Philadelphia, as an active member. Upon ballot, he was declared elected.

Upon motion, the committee on library were instructed to have the dental periodicals belonging to the Association properly bound in volumes, and placed in the library.

The following active members were then elected to attend the Dental Convention to be held in Washington, D. C., in July, 1860, as delegates from this Association:—

Drs. S. Dillingham, Daniel Neale, J. H. McQuillen, J. Foster Flagg, C. P. Fitch, J. E. Garretson, and George T. Barker, of Philadelphia; Dr. J. L. Suesserott, of Chambersburg, Pa.; Dr. Charles Moore, Pottstown, Pa.; Dr. J. Hayhurst, of Attleboro, Pa.; and Dr. Daniel McFarland, of Washington, D. C., being a *pro rata* representation of one-fifth of all the active members.

On motion, the delegates were authorized to fill any vacancies in their number that might occur.

On motion, adjourned.

A monthly meeting of the Association was held on the evening of April 10th, 1860, at eight o'clock.

Vice-President, Dr. T. L. Buckingham, in the Chair.

Present, Drs. Garretson, McQuillen, Peirce, Kingsbury, Woodward, Hopkins, Goodwillie, and Barker.

The subject of

“ABSORPTION OF THE FANGS OF DECIDUOUS TEETH,”

having been selected for discussion, was opened by Dr. James E. Garretson, who remarked that he scarcely knew how to approach the subject, though it was one to which he had given a somewhat close consideration, for such study had only tended more and more to his confounding.

He felt that at this hour he knew decidedly less of the peculiarity of the process of absorption of the fangs of deciduous teeth than when, years ago, he read his first page on the subject.

He thought at the first glance, the process appeared very plain and simple, seeming to require only a comprehension of the general laws of absorption for its complete elucidation; but a more close and patient investigation would prove such was not the case.

Gentlemen might run off excursively on lymphatic and venous absorption, liquefaction of tissue, molecular disintegration, and all the varied and wonderful phenomena of life-changes. They might, and no doubt would, offer in example the thymus gland, Wolffian bodies, etc. etc., but all would be found insufficient to explain the phenomena of absorption of the fangs of deciduous teeth. He meant by this the mode of change, and the agent or agents employed in the work.

It was not as Professor Dunglison had suggested, an atrophy from pressure, because fangs are absorbed where no pressure exists. It could not be an action dependent on the vascularity of the periosteum, because there were cases lying on the table where absorption had progressed from within outward. It was not influenced, as contended by Dr. McQuillen, by the perversion of the life-supply from the temporary to the developing permanent teeth, for he was familiar with cases in which absorption had occurred, and not even the germs of the permanent teeth existed.

It was not necessary to this process that a tooth should have a live pulp, as maintained at the last meeting, for he would present for consideration a tooth, where absorption had taken place, exposing a view of gold-foil, with which the pulp cavity had been filled.

Mr. Tomes, in his late work, gives us nothing new in his observations. The fossæ described by him is a microscopic observation made by many others, and is a stage in the process of liquefaction, without which no tissue is capable of the endosmotic change which removes it from the body; in other words, the gentleman has given us only a phenomenon, not a cause.

The truth of this was evident from the specimens to which he alluded a moment back—that were lying on the table, where absorption had commenced from within and progressed outward.

Whether or not the absorption of this material was dependent on a lymphatic or venous proximity, he did not consider it particularly relevant to consider, but thought it might not be amiss to recall the fact that microscopy had as yet demonstrated no lymphatic glands or vessels in the tooth-pulp.

“A dead tissue must be removed by a living one; it also needs no special cellular mass,” (see Tomes,) which cellular mass he would take occasion himself to examine under the microscope, asserting that it might not unlikely be lymph in a state of attempted organization; the condition of parts thus physiologically excited, would warrant such a supposition.

The unsettled question is, to the existence of what peculiar vessels was

absorption of the fangs due? What must be the condition of the neighboring parts, and was this absorption explainable by the laws of absorption in other parts, or had it phenomena peculiar to itself?

He had no hypothesis of his own to offer, and felt at the present quite in the dark on the subject; and said, in concluding, that he might not have opened the subject as members deemed it deserved from its importance; but it did not seem advisable to enlarge on the subject of absorption in its general relations, knowing that all his fellow-members were quite as familiar with the matter, if indeed not more so than himself, and that so far as the local consideration of the evening was concerned, he admitted to them that he was far from satisfied with any of the explanations that had seemed to suggest to him, or had been advanced by others.

Dr. McQuillen referred briefly to the views he had advanced at a preceding meeting, when an effort was made to account for this phenomenon, by referring it to the great law of compensation that prevails in the entire economy, *i.e.* waste and supply. Thus we find when other portions of the organism are over-nourished, *hypertrophy* is the result; and when the supply is not equal to the demand, *atrophy* supervenes; this was true alike of the muscular and other tissues, not even excepting the osseous.

Such being the invariable result, was it not fair to presume that the two conditions manifested in the numerous and interesting specimens of the absorption of the fangs of the deciduous teeth on the one hand, and of exostosis of the fangs of the permanent teeth on the other, which he had the honor of presenting to the notice of the members, was due to the operation of the same law and brought about by the same causes that induced hypertrophy or atrophy in other parts of the body.

No one certainly would assert that exostosis of the fangs of the permanent teeth was not due to *hypernutrition*. Why, then, may not the atrophied condition of the roots of deciduous teeth with equal propriety be attributed to *defective nutrition*?

The inadequate supply of the materials inservient to the nutrition of the fangs of the deciduous teeth, he had endeavored to account for by advancing the *supposition* (not making an *assertion*) that the demands made by the germ of the permanent successor below for its growth, deprived the blood sent to the deciduous tooth of the essential materials of nutrition. In addition to this, he thought that it was very possible that the pressure of the crown of the permanent tooth upon the capillary vessels of the pulp, or the periosteum of deciduous tooth, by retarding the flow of blood through them, and the influence of the nerves in nutrition, had much to do with it.

With regard to the absorption of hard tissues, such as bone and dentine, in the present advanced state of physiological science, he did not understand how any one could talk about one tissue breaking down another. Every tissue in the body has within itself the elements of life

and of destruction. Cell by cell, each tissue is formed; cell by cell, a constant disintegration and renovation is going on, and this constitutes nutrition. Thus the tissues of the deciduous teeth were formed, thus at least two of them (the dentine and cementum) are removed; no acid, spongy mass, or cancerous body are required to break down bone or dentine, molecular disintegration is all-sufficient. In the function of nutrition the blood-vessels can only be looked upon as the conduits or carriers of nutrient materials to, and waste matter from the tissues. By cell action the pabulum of the blood becomes part and parcel of the tissue, by disintegration of these cells the effete matter is again given up, either to the veins or lymphatics. Neither of which can be regarded in any other light than as capable of removing that which has already assumed a fluid condition.

Dr. Woodward said, that without presuming to any special knowledge of this particular form of absorption, he could see no difficulties in the way of comprehending that it did not apply with equal force to every instance of retrograde metamorphosis in all of the tissues or organs of the body. Special instances had been brought forward by gentlemen, such as the Wolffian bodies and the thymus gland, but what was true of these was true of other tissues, as instanced strikingly by the mammary gland of the female. In this last case, the involution did not appear directly sequent to diminished nutritive supply, for the menstrual flow having ceased, there was generally abundant nutritive material present, as evidenced by adipose development; which, however, did not always occur, and therefore could stand in no casual relation to the mammary atrophy.

In fact, retrograde metamorphosis, which was only another name for atrophy, was normal for every living creature, and for every organ which had reached the full period of life. Even the muscles, often quoted as permanent, fall into a state of involution toward the decline of life.

It could then be stated as a general law, that every organ has within certain limits its period of evolution and involution, the one succeeding naturally to the other. Sometimes these phases in the life of the individual organ coincided with the evolution and decay of the whole organism; sometimes they were far more brief, and then, as involution occurred, the involved texture was either absorbed or thrown off from the surface, as the case might be; thus for example, in the instance under consideration, the root was absorbed, the crown thrown off. It was, then, by the general law of retrograde metamorphosis that he would explain the absorption of deciduous fangs.

It might be objected that this reference of the process to a general law did not explain it, and, in fact, one of the gentlemen had remarked that it was one of the inexplicable processes of nature. He would submit, however, that all the simple facts of nature were inexplicable, and could not be accounted for; and that to explain a complex fact, meant no more

than to refer it to the simple facts of which it was composed. Thus the complex motions of the heavenly bodies were *explained* by showing that they were all so many manifestations of the law of gravity, but the *cause* or reason for gravitation could not be made clear.

Dr. Barker objected to the position assumed by the preceding gentleman, that to *retrograde metamorphosis* alone was the absorption of fangs due. His reason for this objection was, that it was not uncommon to see deciduous teeth remaining in the mouth until a very late period in life, and accomplishing the same work as the permanent teeth.

He had filled, but a short time since, a deciduous tooth for a patient at least forty years of age, and had seen many other instances of deciduous teeth supplying the place of the permanent ones.

The theory that to the universal law of waste and supply must we look for a solution of this phenomenon, seemed to him a true position, particularly so when to it was added the fact of impeded circulation by pressure from the growing permanent teeth.

The position had been advanced by a preceding gentleman, that "the deciduous teeth might be compared to the fall of the leaf, for in both the life-forces were exhausted;" he admitted the truth of this, but would apply it in a different manner: as to him the same law of waste and supply here held good, the sap being withdrawn from the leaf, nutrition could not progress, and cell disintegration was the result.

It had been assumed that deciduous fangs might be and were absorbed when no permanent teeth or germs were present; this might be so. (But in a recent conversation with Drs. J. F. B. Flagg, Danl. Neall, and J. Foster Flagg, gentlemen whose extended experience, particularly in the treatment of deciduous teeth, entitled their opinion to great weight, was assured, that they had yet to meet with the first instance of absorption of the fangs of deciduous where no permanent teeth or germs were present, or did not at some future time make their appearance.)

Dr. McQuillen had never heard of or met with in his own practice an instance in which a deciduous tooth was loose and the fangs absorbed, without finding the permanent tooth ready to erupt or coming through soon after the removal. He would ask the other gentlemen present what *their experience* had been with regard to this matter? He did not wish to be informed of what patients had said, for such testimony must be regarded as valueless. Every practitioner has had sufficient experience to recognize how unreliable the statements of patients are. To account for the removal of the deciduous teeth upon the ground that they have a definite period of existence, and that whether the permanent teeth make their appearance or not, they will loosen and fall out, was the reverse of his experience. On the contrary, he had met with *many* cases (and referred to them on former occasions) where deciduous teeth had remained in the mouth long after the usual period of shedding. In one instance

had removed the nerve from and filled the fangs of a left superior *deciduous* canine in the mouth of a gentleman thirty-five years of age. Again he would take the liberty of referring also to a fellow practitioner, Dr. A. Westcott, who has a left superior deciduous canine which is as firm in the alveolus as any permanent tooth in his mouth.

He *knew* of several instances in which deciduous teeth that were firm in their sockets had been removed, as it was supposed that by their presence they prevented the growth of the permanent organs, and that after the operation, the expected successors had failed to make their appearance. Regarding this a matter of vital importance, he thought it should be adopted as an axiom on the part of the profession *that a deciduous tooth, unless radically affected by decay, should never be removed until there are unmistakable evidences of the presence of a permanent tooth to succeed it.*

Of hypertrophy in connection with inflammation, it was a well attested fact that the hair in the neighborhood of an ulcer was found to grow more profusely than in distant parts of the integuments that are less liberally supplied with blood; and that in cases of circumscribed necrosis of small portions of bone, the adjacent soft parts being rendered more vascular thereby, hypertrophy of the surrounding bone was frequently induced.*

Dr. Buckingham remarked that all organs have certain functions to perform and a limited time to exist. Why some organs are lost so early in life, is not easily accounted for, nor is it giving a satisfactory explanation to attribute their loss to a law of nature.

He thought it was our duty to study these laws, and endeavor, as far as possible, to find out the operations of them; not that we shall ever be able to understand the first cause, but we may arrange the phenomena in classes so that we may be able to explain most of them to a certain extent.

Nearly all the phenomena of gravitation had been observed from the earliest times, but it remained for Newton to attribute them to one great cause; and although he could not explain the force of gravitation any more than the ancients could, he arranged the phenomena so that many of them are now much more satisfactorily accounted for than they were formerly.

Every living thing has a limited period of existence, though there is nothing connected with it by which we can tell how long that period may be. We may know how long others of the same class have lived, and by this judge how long it will live; but if we were to undertake to investigate

* Dr. J. Foster Flagg, at a former meeting of the Association, read an excellent paper on exostosis of the fangs of the permanent teeth, in which he cited, as one of the causes of that condition, alveolar abscess. As the position appeared untenable, we took exceptions to it. Having been convinced that his view on that point is correct, we feel bound and take pleasure in making the acknowledgment here, as the transactions of that meeting were published.—J. H. M'Q.

its structure in order to find out how long it would live, we would soon find we had undertaken a difficult operation. The cells that compose the tissues of an animal that lives but a few months are exactly similar in appearance to those which form the structure of one that lives a century—no physiologist can tell any difference between them, still there is a difference. As different animals have a limited period of existence, so the organs of which they are composed have their own time to develop, grow, and die. Some of them cease to perform their offices after birth; others grow and are used for a short period, and are then replaced by more permanent ones; and others, after they have fulfilled their purposes, are removed so effectually that scarcely a trace is left of them.

The temporary teeth having existed their period of time, and performed their duties, are shed and replaced by more permanent ones; how their roots are absorbed is not well understood—in fact, we know very little of the process by which they are removed. It has been attributed to atrophy or want of nourishment. He would ask why should they become atrophied at this time of life, in healthy children, when the supply of nourishment to the parts was as great if not greater than it had been at any time previous? This is evident from the surrounding tissues being in an excited condition during the time they are absorbed.

That it is not caused by pressure from the permanent teeth, is evident from the fact that there is a bony partition between them. We would suppose that if pressure caused the absorption, the bone would be absorbed first. But the roots of temporary teeth are sometimes absorbed when there are no permanent ones to take their places. Absorption in these cases cannot be caused by pressure.

It has been observed, for a long time, that immediately under the parts absorbed, there is a new tissue formed. It was supposed at one time, that this tissue threw out an acrid fluid that dissolved the roots of the teeth; and although we do not admit now that an acrid fluid is present, still it is supposed this tissue has something to do with the absorption of the fangs; but whether it causes the absorption, or merely fills up the cavity which would be formed by the root being absorbed, he was not able to determine. He thought it received the substance of which the fang was composed, and carried it into the circulation.

He had no doubt but if we took the other meaning of atrophy, we would have the true explanation for the cause of absorption—"a consumption or wasting without any sensible cause." The cells having lived out their period of time, lose their vital powers, degenerate, are broken up, dissolved, and carried into the general circulation. The process is the reverse of that by which they were first formed, the earthy matter passing away first.

Dr. Woodward said, in answer to Dr. Buckingham's question, "What distinction can be drawn between the enlargement of parts produced by

inflammation, and hypertrophy?" that a few years ago he would have answered the question promptly and to his own satisfaction. He would have said, with Rokitansky and a host of others, that true hypertrophy was an increased size of any part resulting from increased nutritive activity without the production of new-formed elements. That in true hypertrophy, the minute elements of the part increased in size, or multiplied by division so as to increase in number. That in inflammatory enlargements, lymph was effused, and new-formed cells arose in the blastema thus afforded, by free cell development. That such enlargements should, therefore, be referred to the category of false hypertrophies, the increase in size being due to the presence of new-formed and abnormal elements.

Since the publication of Virchow's "Cellular Pathology," it was, however, impossible for him to present dogmatically the above statement, and although he was far from prepared to adopt at once all the views of that most ingenious and laborious investigator, he could not wholly ignore them in replying to the interrogations of Dr. Buckingham.

If Virchow be right in the main, if the doctrine of free cell development is to be rejected, if the dogma "omne cellulæ cellula" hold good, if the pus-lymph and cancer-cell, in common with the cells of all abnormal growths, result in fact from the multiplication by division of cells normally existing in the part affected, it will be seen at once that the theoretical boundary line between hypertrophy and inflammation is broken down, and that our most fundamental notions on these points must be reconsidered.

Dr. Peirce said, in discussing the absorption of the fangs of deciduous teeth, it may not be out of place to glance at the condition of the patient at the time of their development, also the purpose they are intended to subserve. Dental development, commencing as it does early in intra-uterine life, steadily progresses from that period until some time in infancy. The teeth, unlike the other organs of the body, are perfected and grow no more, becoming at that early age "efficient organs of mastication and articulation." This state they retain until, with the lapse of time, the jaws increase in size, and *stronger organs of mastication* become *necessary*.

This fact being patent, the query naturally arises, by what process are they removed in order that they may be replaced by more durable substitutes?

But before entering further upon this he would allude to another fact, that the tissues in infancy are less firm and durable than later in life; also, that the changes which take place at that period, either in absorption, reproduction, or growth, are more rapid; hence a little light upon the speedy destruction that we have in many instances of the fangs of deciduous teeth.

He thought all were of the opinion that this necessary change takes place in obedience to a law in the animal economy, the result of which

is the removal of such tissues as have served the purpose for which they were intended, giving place to those better qualified to supply the wants of the animal in a later period of existence. But this explanation does not solve the query; the fact that it takes place in accordance with a law does not tell how it is done, and hence it is not satisfactory.

Whether the absorption is, as Dr. McQuillen has suggested, the result of a transfer of nutrition, and a refusal on the part of nature to support useless organs, and hence a natural breaking down from this cause, or the consequence of the presence of a tissue secreting some fluid directly effecting its destruction, is an unsettled question. That there is a vascular tissue lying directly in contact with the absorbing fang, there can be no doubt, but that this tissue is instrumental in the manner alluded to above, is not certain. It may simply be fulfilling the law against a vacuum, and hence only a thickening of the membrane to occupy the space left by the destruction of the fang; or it may, as Dr. McQuillen suggests, be the pulp in a condition similar to it, previous to calcification.

The evidence in favor of the former theory (a transfer of nutrition) is strengthened by the fact, that in by far the larger proportion of instances the presence of the permanent tooth is essential to the absorption of the deciduous fang; for when that is not in progress of development, the deciduous fang remains unabsorbed, and, as far as it can, the crown supplies the deficiency. In confirmation of this, I could refer gentlemen to a number of patients who have reached their twenty-fifth year, and are now using to advantage deciduous teeth preserved with gold fillings. Also two aged twenty-three and twenty-five, each of whom have a deciduous superior cuspidatus, with nerve destroyed and fang filled with gold, doing excellent service.

That the above rule respecting absorption is universal, I am not prepared to affirm, for I have extracted two deciduous crowns, with fangs absorbed, without the gums or alveolar ridge giving any evidence of the presence of a permanent tooth, and, judging from age of patient, should think the germs were undeveloped. But even in these I cannot say they would never, or have not been replaced, for I have not since seen the patient.

In reference to the progress of absorption, some thirty specimens of deciduous teeth which he had collected, representing the progress of absorption in all its various degrees, prove—First, that absorption commences externally and advances internally; secondly, that in the progress of absorption the tissue highest in the scale of organization is the last to be broken down; and thirdly, that a dead or necrosed tooth will not be absorbed, but nature makes the effort to remove it by suppuration, by throwing it in a mass from its socket, or by absorption or sloughing and exfoliation of the surrounding alveolus and gum. These facts

bring us to other reflections—such as the propriety of destroying nerves of deciduous teeth, etc.; but he would not occupy more time than to put on record his firm conviction, that of the two evils, viz., premature extraction of the deciduous teeth, or non-absorption of their fangs, he should much prefer the latter.

Dr. Garretson said the whole or portion of the fangs may be removed by an atrophy, the result of pressure on the parts by the advancing permanent teeth, and remarked that he would denominate this species of removal an atrophy. He would thus draw a line between fangs disappearing from pressure, and their disappearance where no such cause existed. Such disappearance of fangs seemed to him pathological rather than physiological, inasmuch as it was caused by a mechanical interference with its function. The parts were removed precisely as parts disappear before an advancing scirrhus.

He did not wish to be understood as drawing any line between atrophy and absorption; he made this division merely for a present convenience in explanation. But fangs were taken away, disappearing gradually from apex to base, where no pressure existed from the beginning to the completion of the process. He remarked that, as pressure was not then the rule, it could not be the exciting cause of absorption.

Gentlemen had advanced the view, that the deciduous tooth, having lived the allotted period, dies through a natural law. This was all very well; but unfortunately a great many deciduous teeth belied the assertion by never absorbing, remaining in the mouth until surgically removed.

Such data offered nothing in explanation of the rule sought after. Where there is no certain rule, action is chance. Nature never leaves her work in this way; she has rules for all she does. If such cases were called anomalies, he would reply they were of entirely too frequent occurrence to be called any such thing.

As, then, it is seen, by an understanding of the visible condition of this fang absorption, that it follows no rule which governs the laws of general absorption, and as everything in nature with which we have familiarity proves the existence of law and design, it does seem to prove that the explanation sought evades us, because we are yet ignorant of the true law through which absorption is influenced.

Dr. McQuillen said, Mr. President, I arise to offer a motion, which, after listening to the lucid and interesting remarks of Dr. Woodward, cannot but meet with a hearty response on the part of the members present. It is as follows:

Resolved, That a vote of thanks be tendered by this Association to Dr. Woodward for the able and instructive views advanced by him this evening.

Seconded by Dr. Barker, and adopted unanimously.

[We regret that the remarks of Dr. W. could not be presented in extenso.]

EDITORIAL.

THE DENTAL REGISTER OF THE WEST ON "PRACTICAL HINTS."

THE April number of that journal contains some comments on "Practical Hints," by J. D. White, on the method of plugging roots of teeth. Dr. T. remarks that it "contains rather peculiar ideas," and quotes the following from our article: "In recent cases there is frequently a fragment of the blood-vessels and nerve left in the lower third or fourth of the fang, out of the reach of our instruments, and to thrust the gold against this would be to excite inflammation of the external periosteum." Now if there be anything peculiar in this, it is what every one in the profession ought to know and think about. We advanced the same idea in a thesis paper written in 1842, and which has been published twice since; once in the *News Letter*, and once in pamphlet form. When the pulp of a tooth is removed to the *very apex* of the root, a wound of the external periosteum it at once produced. There is a wound in the membrane which envelops the extremity of the root, from which the tooth receives its nutrition; there is a wound in the membrane which is the threshold of alveolar abscess. If you approach that part with caution, you may avoid the usual sad consequences of the destruction of a dental pulp. To sever the pulp from the external membrane and expect the parts to exhibit no signs of violence, is looking for too much; when a pulp of a tooth is extirpated, you enter the camp of vital tissues; and the organization of the forces to perpetuate a healthful existence does not depend upon forcing nature, but letting the disturbed relations restore themselves. All other wounds require *time* to restore the part injured; hence the root of a tooth should not be plugged until it is *ready*, and that is, when the tooth, as we have said in a former article, can do without its pulp. The root is kept open to get at the wound for treatment, and if it persistently resists treatment, there is no cure. No matter how far down a root the gold passes, it does not depend upon gold for its recovery from a loss of a pulp. As long as a pulp is in a tooth entire, the usual amount of blood will be invited there; but when it is cut away, this usual amount of blood must go somewhere else. Where will it go to? It is poured out into the pulp cavity until these *dangerous* fragments contract and retract upon themselves, to stop their own hæmorrhage; and this will be effected as rapidly as the anastomosis is established by the membrane at the apex of the root, to accommodate the blood which the vessels of the pulp proper formerly carried. In relation to this subject, we were somewhat surprised, at a meeting of the old American Society of Dentists, held in Philadelphia some years since,

(1851,) to witness the embarrassment of the chairman of a committee about to report a series of aphorisms on the treatment of the dental pulp, when he stated to the president that, from a few minutes conversation with Dr. White, he had made up his mind that the first principle advanced in the treatment was an error. The aphorisms were never reported. They set forth that the root should be plugged immediately *after* the extirpation of the pulp. These fragments answer the same purpose as a scab in other wounds, to protect the parts during and to the termination of the healing process; and to plug a root before this is completed is unreasonable and bad practice. Dr. T. further remarks, that "it is equally as untrue, that inflammation of the periosteum will occur, if a space is left in the canal between the filling and the remaining portion of the pulp." Now we cannot understand how a limited space can induce inflammation of the remaining portion of the pulp, when it (the pulp) is not there. It is only the fragments of the blood-vessels that supply the pulp we are referring to; and if they were thrust against the external membrane, inflammation of it might be induced. If *space* is a cause of inflammation, it is a new feature in pathology. Familiarly, all that is contained within the tooth is called pulp; but where the canal of the root is hair-like it can hardly be called so. And this attenuated canal is that third or fourth of the root which has been referred to, into which our instrument will not pass. In this is contained the fragments of the blood-vessels spoken of. These fragments do not invite blood to the part, as is the case when the pulp of the tooth remains. This subject has been discussed in the thesis paper before referred to. The doctor further adds, "in the great majority of cases that space will be filled by a discharge from the nerve." (What does the *nerve* discharge when the blood-vessels have ceased to exist?) "And this will produce equally as great difficulty as though the gold were in contact with the living fragment." We do not plug a root while this fragment is *living*, and this we test by time. As long as blood is extravasated, the tooth is not ready to fill. A little cotton passed into the root and left there will indicate when the discharge of blood has ceased. We have given the time this requires in our former articles. The doctor remarks, that "if any portion of the canal is left unfilled, it might as well all be so." This is strange logic in the remedial treatment of disease. We left a debating society when we were twenty years of age, because the majority of its members adopted a similar style of argument. As far as we can see, the rest of the doctor's article explains *itself* down to where he apologizes for referring to our article; "because," as he adds, "we consider it radically wrong in its teachings, and one calculated to lead young members of the profession into error. It will never injure any one who has adopted the right principle and carried it into practice. But it is those who are seeking the truth that are liable to be led astray." Now this is a praise-

worthy interest in behalf of the young. It is what we have been, during all our writings, trying to do; if we have failed to accomplish good, the fault does not lie in want of a just and honest effort. Journal articles are always open for correction, as time, experience, and further knowledge may dictate. But we do not anticipate the danger the doctor refers to on the part of the young, as it is a principle already established, that they are more likely to be improved by an advance in science than the old, at least after a certain age. We do not know how old the doctor is. But it is in standard works or text-books that false teachings are most dangerous. We will refer to "Taft's Operative Dentistry" in our next for a correction of some of our errors. J. D. W.

(To be continued.)

RENOVATION OF OLD CLAY CRUCIBLES.

J. S. C., of Galena, Illinois, recommends the following plan for the renovation of old crucibles. Thus, soak them for twenty-four hours in a liquid composed of equal parts of sulphuric acid and water, and afterwards wash them well in an aqueous solution of soda, and finally with soap and water; then expose them to a moderate degree of heat for several days, when they will be again fit for use. We are, however, assured by one of much practical experience, that this course is not always the most economical, as the frequent use of crucibles is apt to cause a greater loss by their fracture, and consequent escape of the metal. The best plan to avoid loss, both by infiltration of the metal and fracture of the crucible, is to place within the latter a layer of powdered charcoal, which will prevent the molten mass from coming in such close contact with its surface; while externally, to protect the crucible from the fire, cover over the sides and bottom with a coating of the slush of brickmaker's clay, which will also prove useful in retaining the metal even after fracture.

PROFESSOR A. WESTCOTT.

The daily papers inform us that this eminent dental practitioner has recently been elected Mayor of Syracuse. In commenting upon his fitness for the office, a fellow townsman states that, through his individual exertions, years ago, the sanitary condition of the city has been greatly improved by the removal of an old mill-pond, that was a hot-bed of miasmatic emanations; and that this property, which was then regarded as valueless, is now worth half a million of dollars.

REVIEW OF DENTAL LITERATURE AND ART.

BY J. H. M'QUILLEN, D.D.S.

EXACTITUDE OF SCIENCE.—Under this caption Dr. Shelton McKenzie, the able literary editor of the *Press*, recently presented the following interesting anecdote in relation to Prof. Richard Owen, taken from Mr. Lewis's "Studies in Animal Life," published in the *Cornhill Magazine* :—

"I was one day talking with Professor Owen in the Hunterian Museum, when a gentleman approached with a request to be informed respecting the nature of a curious fossil, which had been dug up by one of his workmen. As he drew the fossil from a small bag, and was about to hand it for examination, Owen quietly remarked: 'That is the third molar of the under jaw of an extinct species of rhinoceros.' The astonishment of the gentleman at this precise and confident description of the fossil, before it had quitted his hands, was, doubtless, very great. I know that mine was."

In confirmation of this, Dr. McK. remarked :—

"Professor Owen, described by Humboldt as the greatest anatomist of his age, and by another eminent writer as the Newton of natural history, once informed us that his reputation was never jeopardized until the femur or thigh-bone of an unknown animal from New Zealand shown to him was instantly referred to the class of birds, though no bird so large had hitherto been known to exist on the earth. He built up, on paper, a skeleton of the gigantic bird to which, Science told him, the fragment of bone *must* have belonged, and sent this drawing, with a paper stating and justifying the grounds of his assumption, to be published in the Transactions of the Zoological Society of London. The paper and drawing were so published, but the editors of the Transactions affixed a note disclaiming any belief in the 'extravagant theories of Mr. Owen.' Many months passed, and Mr. Owen was ridiculed, at home and abroad, about his monstrous bird. At last, a young naturalist—son, we think, of Dr. Gideon Mantell, the geologist—sent a box of bones to Professor Owen from New Zealand, and these, when put together, made a complete skeleton of a bird, which answered in size, form, and all other particulars, to the description which Owen had made from a sight of a single femur. Of course the laughs were silenced, and Professor Owen's reputation, as a paleontologist, was established at once and forever."

Although the above apparently indicates that it is impossible for Prof. Owen to advance an hypothesis (even when based merely upon fragmentary specimens) describing the genus, form, size, and habits of an unknown extinct species which would eventually prove to be incorrect, yet there are at least *two* marked instances in which that eminent naturalist was unquestionably mistaken.

In directing attention to these *facts*, it is with no disposition to question, for one moment, the genius of one who undoubtedly possesses the talent of scientific observation and research, combined with the highest capacities for the broadest generalizations, but as evidence of the fallibility

of finite beings, and of the possibility of the most accurate and careful observers being led astray, particularly when drawing their deductions from mere superficial examinations.

The first case referred to is mentioned by Dr. Carpenter,* and is one of the many instances that could be cited of the value of the microscopic test, in the examination of fossil remains. For the well-marked variations in the minute structure of the teeth, bones, and the dermal skeleton of the vertebrata of the several orders and families, present so many characteristic differences that a knowledge of them, on the part of the microscopist, enables him to decide a mooted point with a positiveness that cannot but surprise those who are unfamiliar with the subject. In a former number of the DENTAL COSMOS reference was made to the practical value of such knowledge by settling on one occasion, in an incontrovertible manner, a question in which large pecuniary interests were at stake. Dr. Carpenter says:—

“Some fragments of bone were found, some years since, in a chalk-pit, which were considered by Prof. Owen to have formed part of the wing-bones of a long-winged sea-bird, allied to the albatross. This determination, founded solely on considerations derived from the very imperfectly preserved external forms of these fragments, was called in question by some other paleontologists, who thought it more probable that these bones belonged to a large species of the extinct genus *pterodactylus*, a flying lizard, whose wing was extended upon a single immensely prolonged digit. No species of *pterodactyle*, however, at all comparable to this in dimensions, were at that time known; and the characters furnished by the configuration of the bones not being in any degree decisive, the question would have remained unsettled, had not an appeal been made to the microscopic test. This appeal was so decisive, by showing that the minute structure of the bone in question corresponded exactly with that of *pterodactyle* bone, and differed essentially from that of every known bird, that no one who placed the least reliance upon that evidence could entertain the slightest doubt on the matter. By Prof. Owen, however, the validity of that evidence was questioned, and the bone was still maintained to be that of a bird, until the question was finally set at rest, and the value of the microscopic test triumphantly confirmed, by the discovery of undoubted *pterodactyle* bones of corresponding and even of greater dimensions, in the same and other chalk quarries.”†

In the second instance, Dr. Harlan, a resident of Philadelphia, who took considerable interest in paleontology, discovered, or had presented to him, several specimens of fossil remains, among which was a portion of what he supposed to be, and described as the inferior maxilla of a fossil hog. To this animal Dr. H. gave the name *Sus Americanus*. Prof. Owen's curiosity having been excited by reading the description, he requested Mr. Lyell, the geologist, who was about visiting this country at

* Carpenter on the Microscope, p 642.

† See Prof. Owen's Monograph on the British Fossil Reptiles of the Chalk Formations.

that time, to obtain, if possible, a loan of the specimen for a short period, that he might have an opportunity of examining it. The request was complied with, and the specimen, after being carefully examined, was returned, with the remark by Prof. Owen, that it was not the inferior maxilla of a hog, but of an extinct species allied to that animal; and suggested that it should be named after its discoverer *Harlanus Americanus*. At a somewhat later period than this, the bone attracted the attention of the eminent paleontologist, Prof. Leidy, who was struck with the marked characteristics of the *ruminantia* presented by it, and, after a comparison with other specimens of that class, he proved to the satisfaction of himself, and other scientific men, that it was the inferior maxilla of an *ox*! In accounting for the error into which Owen had been led, Prof. L. informed us that the crowns of teeth (which, if they had remained, would have been invaluable guides in determining the genus of the animal,) had been worn off even with the alveoli. He supposed that the specimen had been compared with the jaws of the hog and the tapir, and bearing some resemblance to both, and yet not exactly like either, the inference was naturally made that it belonged to an extinct species allied to that family.

A DICTIONARY OF THE ENGLISH LANGUAGE. By JOSEPH E. WORCESTER, LL.D. Boston: Hickling, Swan & Brewer, 1860.

In acknowledging the reception of this truly valuable work, (containing the rich results of the long lifetime labor of a master-mind, devoted to philological studies,) it is with no disposition to enter upon the consideration of the vexed question of the day—the relative merits and demerits of Worcester and Webster—in any other spirit than as a faithful journalist. At the same time candor compels the acknowledgment, that from early boyhood, in company with a large number of those who speak the English tongue, we have looked upon Dr. Webster as reliable and unquestionable authority in everything that related to the language, and yielding implicit obedience in this way for years, it required no slight struggle to overcome prejudices formed, and long maintained, in favor of the innovations proposed by him.

But a careful consideration of the following queries, “What is authority in the *usage* of language? is it the dictum of one individual? Can a single mind determine what shall be the form of the medium of communication for millions?” compelled the admission that such a course was open to many and serious objections. For as language is constantly undergoing *changes* and *additions* brought about by the exigencies of the times, (as in the advance of science, the improvement of art, and the cultivation of letters, in religion, history, poetry, etc.,) and occur by the common consent of those using it correctly, any innovation, therefore, is only of authority when it has received such sanction. Again, it has been truly

and happily said by a recent writer, "Things much used inevitably become much worn, and it is one of the most curious phenomena of language, that words are as subject as coin to defacement and abrasion by brisk circulation. The majority of those who speak any tongue incline to speak it imperfectly."*

Subject, therefore, to constant mutations and additions, on the part of the educated and the illiterate, a dictionary, containing reliable primitive authorities, and the recognized usage on the part of the best and purest writers, is not only invaluable as a work of reference, but in addition an important aid to a complete knowledge of the language. In the preparation of such a work, as the London Philological Society justly remarks, the duty of the lexicographer is to present faithfully the best usage, and not to act the part of a dictator by endeavoring to force upon the world that form of language which he conceives to be correct.

After a careful and almost daily examination of Dr. Worcester's work, during the last two months, instituting at the same time comparisons between it and other authorities in our possession, we cannot but acknowledge that the time thus appropriated has been pleasantly and profitably spent, on account of the fullness and accuracy of the information obtained; and that, if compelled to confine ourselves to one dictionary, (which we should regret to do,) Worcester undoubtedly would be selected. Throughout the entire work, it is evident that he fully appreciates the duty of the lexicographer by giving the language as it is, not his conceptions of what it ought to be; and representing, as the orthography and pronunciation does, the approved usage of our *best* writers and speakers—for instance, Everett, Daniel Webster, Irving, Bancroft, Prescott, Longfellow, Dunglison, Holmes, Emerson, Story, Cooper, etc.—it will be found a reliable guide to those who desire to speak and write in accordance with such authors. The definitions are full and comprehensive, and the pictorial illustrations and diagrams introduced, in *connection* with the *text*, are important aids to a clear understanding of the objects they represent. In connection with this, we would refer particularly to the words bison and buffalo.

It has been asserted, that the definitions in Webster are far superior to Worcester; but a careful comparison has not convinced us that this is the case; in some instances, indeed, it is just the reverse. In support of this, refraining from the introduction of many general and scientific terms, the following are presented, as they relate to our specialty:—

WEBSTER.

DENTIST, *n.* One whose occupation is to clean and extract teeth, or repair them when diseased.

WORCESTER.

DENTIST, *n.* [It. & Sp. *dentista*; Fr. *dentiste*.] One who devotes himself to the study of the diseases of the teeth and their treatment; a surgeon for the teeth;—called also *dental-surgeon* and *surgeon-dentist*.

Dunglison.

* Marsh's Lectures on the English Language.

So far as the mass of those who called themselves dentists, thirty years ago, was concerned, Dr. Webster's definition was undoubtedly correct; during the intervening period, however, the rapid advance made by the entire profession has relieved it from that reproach.

WEBSTER.

DENTITION, *n.* [L. *dentitio*, from *dentio*, to breed teeth, from *dens*.]

1. The breeding or cutting of teeth in infancy.
2. The time of breeding teeth.

TOOTH, *n.*; *pl.* TEETH. [It corresponds with W. *did* and *têth*, a teat, Gaelic, *did*, dead, and with *toot*, supra; signifying a shoot. If *n* is not radical in the L. *dens*, Gr. *οδους*, *οδοντος*, this is the same word.]

1. A bony substance growing out of the jaws of animals, and serving as the instrument of mastication. The teeth are also very useful in assisting persons in the utterance of words, and when well formed and sound, they are ornamental. The teeth of animals differ in shape, being destined for different offices. The front teeth, in men and quadrupeds, are called *incisors*, or *cutting* teeth; next to these are the pointed teeth, called *laninary*, *canine*, or *dog teeth*, and on the sides of the jaws are the *molar teeth* or *grinders*.

WORCESTER.

DENTITION (den-tish'un), *n.* [L. *dentitio*; *dens*, *dentis*, a tooth; It. *dentizione*; Sp. *denticion*; Fr. *dentition*.]

1. The formation and evolution of the teeth; the cutting of the teeth; teething. *P. Cyc.*
2. The time of teething. *Smith.*

TOOTH, *n.*; *pl.* TEETH. [M. Goth. *tunths*; A. S. *toth*, *pl. teth*; Frs. *tanne*; Dut. *tand*; Ger. *zahn*; Old Ger. *zan*, *zaad*; Dan. & Sw. *tand*; Icel. *tonn*.—Sansc. *danta*; Pers. *dendan*; Hind. *dant*.—Gr. *οδους*, *οδοντος*; L. *dens*, *dentis*; It. *dente*; Sp. *diente*; Fr. *dent*.]

1. One of the small, hard bones, shaped in general like an irregular cone, fixed in the jaws, and serving to lay hold of, and to cut, tear, and triturate alimentary substances.

☞ True teeth are found only in man, the mammalia, reptiles, and fishes. In the adult, the teeth are thirty-two in number, sixteen to each jaw, consisting of four incisors, or incisive or cutting teeth, occupying the anterior part of the jaw, two canine teeth, four bicuspid or lesser molar teeth, and six molar or great molars occupying the farther parts of the alveolar arch. *Dunghlison.*

The synonyms presented in the main body of the work, and each under its appropriate head, marking, as they do, in a clear and lucid manner, the different shades of meaning in words, if consulted as they should be, cannot but have a tendency to correct a vicious habit upon the part of many writers of employing terms which convey a very different meaning to the reader from what they intended. Scientific terms have received a large share of attention, and are so liberally introduced, and so fully and accurately defined, that it is invaluable on this account, not only to the general, but to the professional reader. Satisfied that in all these particulars Dr. Worcester's dictionary is a work of the highest value, we should wish to see it in the possession of every dental practitioner in the land.

Before closing this, we cannot refrain from again directing attention to the culpable carelessness, or something worse, too often manifested in the communications that appear in dental journals. This is not advanced in disparagement of that which is good, but with the desire that

the miserable effusions of a few may not cast a stigma upon the efforts of all. As this deficit can be remedied, by each and all who contribute, cultivating an intimate acquaintance with the medium through which their thoughts are to be conveyed to others; every one who has a just regard for his profession, and a proper respect for his own reputation, will certainly make the effort. Not for the purpose of employing an inflated diction, but that his language may be so clear and simple that it can be read and understood by all men. Mere style should not be the object, but the aim should be to acquire the power of communicating in the most *attractive* and *effectual* manner the *discoveries*, *improvements*, and *suggestions* one may be impelled to make. The following, from the admirable writer already cited, indicates so clearly the necessity all in this country are under of cultivating more than a superficial acquaintance with their mother tongue, that it seemed appropriate to present it here :—

“There are circumstances which recommend the study of English, especially to us Americans, others which appeal equally to all who use the Anglican speech. Of the former, most prominent is the fact that we, in general, require a more comprehensive knowledge of our own tongue than any other people. Except in mere mechanical matters, and even there far more imperfectly, we have adopted the principle of the division of labor to a more limited extent than any modern civilized nation. Every man is a dabbler, if not a master, in every knowledge. Every man is a divine, a statesman, a physician, and a lawyer to himself, as well as a counselor to his neighbors, on all the interests involved in the sciences appropriately belonging to those professions. We all read books, magazines, newspapers, all attend learned lectures, and too many of us, indeed, write the one, or deliver the other. We resemble the Margites of Homer, who (Πόλλ' ἡπίοτατο ἔργα) practiced every art, and if, as he (κακῶς δ' ἡπίοτατο πάντα) bungled in all, we, too, must fall short of universal perfection, we still need, with our multifarious strivings, an encyclopedic training, a wide command over the resources of our native tongue, and, more or less, a knowledge of all its special nomenclatures.” * * * * *

“I would, therefore, inculcate the importance of the careful study of genuine English, and a conscientious scrupulosity in its accurate use, upon all who in any manner occupy the position of teachers or leaders of the American mind—all whose habits, whose tastes, or whose vocations lead them to speak oftener than to hear.”

TREATMENT OF IRREGULARITY OF THE PERMANENT OR ADULT TEETH.

By E. H. ANGELL, Dentist, San Francisco, Cal.

The following article is taken from the proof-sheets of the San Francisco Medical Press, furnished by the author of the communication. We are pleased to have an opportunity of presenting it to the readers of the DENTAL COSMOS, as there are several valuable suggestions in it; but must beg leave to differ with the writer in the conclusion arrived at, that by the use of the apparatus described he succeeded in separating the superior maxilla from each other. With no disposition to assert that such a thing is *utterly impossible*, yet, when taking into consideration the anatomical

relations existing between the right and left superior maxilla and the other bones of the face with which they articulate, such a result appears *exceedingly doubtful*. Even admitting the impression of the writer to be correct, it would be a very strong argument against the use of such an apparatus; for surely the irregularity of the teeth is a trifling affair compared with the separation of the maxilla, which could not take place without inducing serious disturbance in the surrounding hard and soft parts. Doubting the possibility of effecting the separation, we can see no objection to the employment of the apparatus, and indeed believe that it will be found very useful in correcting many cases of irregularity.

After presenting a table, taken from Professor Harris's work, of the order and period of eruption of the permanent teeth, (with which our readers generally are familiar,) he says :—

“Considering these organs therefore, in the order of their eruption and development, we have the first molars, two in each jaw, situated directly behind the deciduous set. As the eruption of these teeth is generally attended with no pain or inconvenience, they assume their places in the mouth so stealthily, that the parent or guardian usually is none the wiser for their presence.

“The deep depressions in their grinding surfaces are frequently so imperfectly covered with enamel as to readily invite disease; as a consequence, they often become carious soon after their eruption, and if neglected, their destruction becomes inevitable. If the carious or diseased portion is removed as soon as it has penetrated to the bony structure, and its place supplied with pure gold in a skillful manner, there is little difficulty in rendering these invaluable organs useful up the period of a protracted old age. I am the more explicit in relation to these organs, from the fact that the place they occupy in the economy of nature is in no corresponding degree appreciated. The cases are far too numerous in which their existence is entirely unknown to parent or guardian until the exposure of their pulp cavities compels the too intimate knowledge of the forceps. These teeth, four in number, are the first of the permanent set to take their position in the mouth, and are usually fully developed and admirably articulated before any of the primary teeth have fallen from their sockets. Nature has thus in her munificent wisdom, provided a sure and unerring guide to the correct occlusion of the jaws, despite the loss of the deciduous set. By the presence of these organs, correct articulation is preserved, while without them there is no security against deformity and distortion of the features. At the early period at which these teeth are permitted to be destroyed, the inferior jaw may incline to either side, or, instead of staying in its place, may assume the deformed position, denominated *underhung*; in which the inferior incisors shut outside the superior. The distortion of face and ugliness of countenance resulting from the early loss of these teeth, would severely tax the science of mathematics to compute.

“The central incisors are the next to make their appearance, and if disease and ignorance have left undisturbed their predecessors they usually assume the places designed for their occupation with unerring certainty; but if modern vandalism has forstalled nature, or a disregard of hygienic laws has permitted disease to do its devastating work, there no longer

remains any guarantee that these teeth will assume their correct positions, unless aided by the almost boundless resources of dental science.

"The lateral incisors succeed these, and are subject to the same laws and liable to the same contingencies.

"These are succeeded by the first, and the first by the second bicuspid, the eruption of which is attended with no difficulty if empiricism or disease has not laid waste the temporary set, as they assume the places hitherto occupied by the first and second primary molars. The size of the latter considerably exceeds that of the bicuspid, so that the last have abundant space assigned them, and an excess even, which is held in reserve for the cuspidati, which in size greatly exceed their temporary precursors.

"The bicuspid are succeeded by the cuspidati, and if the teeth already developed have followed the grand highway nature has prepared for them, or the same has been accomplished by scientific aid, little will now remain to induce irregularity. If, on the contrary, the loss of the deciduous teeth has permitted the jaws to become narrowed and contracted, so as to leave no room for the cuspidati, as a consequence they are impeded in their eruption altogether, or compelled to take place inside or outside the dental arch. If on the inside, they encroach upon the tongue and impair articulation; if on the outside, they impart an expression so nearly approximating to the hideous, as to become the constant source of annoyance to the sufferer, and the occasion of regret, if not disgust, to his friends.

"Those that have arrived at adult age with these protruding teeth, are not unfrequently firm in the conviction that they have been more generously endowed than their fellows, with what they denominate tusks or tushes. The suspicion that they are an important and distinctive feature of a complete and natural set of teeth, seems never to have occurred to them.

"I have in my cabinet the right and left superior cuspidati, vulgarly denominated eye teeth, of extraordinary length and thickness yet elegant in structure and proportion, which I removed for a man thirty years of age. He had been accustomed to the adventurous life of hunting the leviathan of the deep, and had imbibed some of the superstitions so common to men who 'go down to the sea in ships,' yet in this instance a superstition from which landmen are not exempt. He had arrived at the settled belief, that between these organs and those of vision there existed so intimate a relation, that the loss of the former would destroy the sight of the latter. It was from this conviction that he had so long endured these unsightly teeth, the whole of which were completely outside their fellows. In this case, the appearance of the teeth was but a small part of the discomfort that had been suffered. Their prominence had twice on each side, and at different periods, been the occasion of severing the lip in twain in consequence of blows received directly over them, and on either side he wore the bungling scars occasioned by these wounds. As the other teeth had completely filled the arch and were all sound and firm, there remained no alternative but to remove the offenders, which I need not say was accomplished without detriment to the organs of vision.

"One of the modes of treatment frequently employed when these teeth begin to make their appearance and it is ascertained that there is not adequate space, is to remove them as soon as they can be taken hold of with the forceps, and thus deprive the mouth of two of its most ornamental,

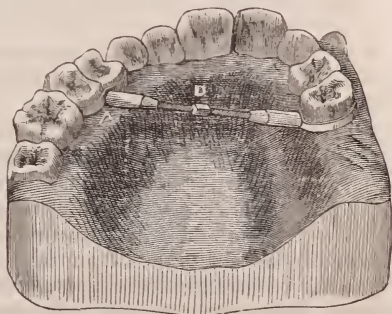
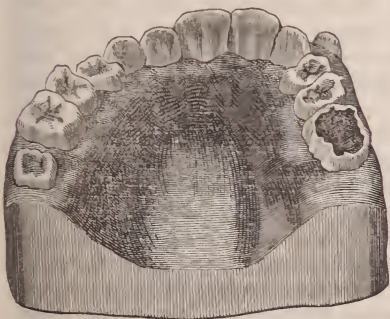
and at the same time, most serviceable organs. Another is the removal of the first bicuspid, and the employment of pressure, to bring the cuspidati into their places; and still another is the removal of the second bicuspid, when the first are moved back, and the cuspidati, as in the former instance, drawn into the arch.

"If the teeth are sound, and I am to treat this class of irregularity, and have the case in charge as soon as the cuspidati have made their appearance, I employ neither of the foregoing methods; but by an apparatus, simple and efficient, proceed to widen the jaw and expand the maxillary arch, so as to admit the teeth to the places nature intended them to occupy. The time necessarily involved in this expansion at the age above indicated, by the apparatus in question, need not exceed two weeks; after which it is only necessary to preserve the space secured until the complete eruption and development of teeth in question. If the mouth having this class of irregularity has carious teeth that cannot properly be repaired, they should be removed, whether molars or bicuspid, in the event of which less widening will be required, and as a consequence, the difficulties of the case will be greatly diminished. That my method of treating irregularities of this class may be better understood, I subjoin the following case:

"Miss ———, aged fourteen and a half years. Superior jaw as appears in diagram No. 1, the drawings being the size of nature. When I first saw the patient, the left superior first molar was aching from the exposure of its pulp cavity. The second molar had not yet made its appearance, owing probably to the crowded condition of this side of the jaw. The left cuspidatus was completely outside the arch, where it remained suspended, having only attained half its length, while the lateral incisor and first bicuspid were close together, the former being so far inside the arch as to close within the teeth of the inferior jaw, the contact of which had considerably worn the enamel from its labial surface. On the right side the teeth were cramped for want of room.

No. 1.

No. 2.

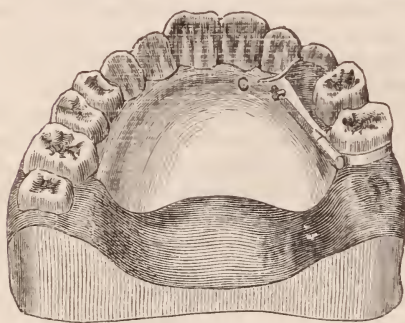


"The first step indicated was to remove the aching tooth, the next, to give those that remained adequate space. For this purpose I adapted to the lingual surface of the bicuspid of the right side, collars of gold, with linings of pure gold, that the contact might not injure the enamel. To these collars, which united between the teeth, was soldered the tubular nut marked A, diagram No. 2. The thread in the nut was sufficiently

extended to prevent any rocking motion. On the left side similar collars were not admissible, as the first bicuspid could not be moved outward, without moving the cuspidatus further out of place. I therefore adapted to the second bicuspid a clasp, similar to those usually employed for retaining plates supporting artificial teeth. By means of the latter, which, like the collars, was lined with pure gold, the fixture was prevented from sliding during mastication. To this clasp was soldered a second tubular nut, differing only from the first in having a left hand thread. The threads on the shaft marked D were cut to correspond with the nuts. The middle of the shaft was made square, to which was fitted the key or wrench, as seen in diagram page . This was made from a dime, the silver being strong enough to turn the shaft without being hard enough to bruise it.

"This apparatus was placed in the mouth, when the shaft was made to revolve until the fixture was made comfortably firm, when the patient was provided with the key, and instructed to keep the shaft as uniformly firm as possible. Those directions were industriously followed, and at the end of two weeks, the jaw was so much widened as to leave a space between the front incisors, as indicated in diagram No. 2, showing conclusively that the maxillary bones had separated; while the left lateral incisor had been

No. 3.



brought completely outside the inferior teeth. The plate (as seen in diagram No. 3) was next adjusted to the mouth, the molar and bicuspid of the right side having been moved apart, so as to admit a clasp adjusted to the molar. A collar was extended from the plate to the posterior proximal surface of the lateral incisor. A nut was soldered to the plate at the point near which the collar was attached, through which a smaller shaft, having a thread corresponding to the nut,

was made to revolve. To the opposite end of this shaft was affixed the common chain swivel, to which was soldered the original clasp, affixed to the extremity of the first shaft.

"The maxillary arch being sufficiently widened, the next step was to move the bicuspid posteriorly, until sufficient space had been secured to receive the cuspidatus. This apparatus was placed in the mouth, and the patient again provided with the key, and instructed to apply it often enough to keep up a uniform pressure. In this instance we had a larger resisting surface than in the former, consequently our progress was slower; besides, the patient was kept at home for a time, from a severe indisposition, induced by an epidemic prevalent at the period. My impression, however, is, that the second bicuspid might have been moved sufficiently for our purpose in two weeks, without difficulty or causing any material inconvenience to the patient. The first bicuspid followed of its own accord a part of the distance.

(To be continued.)

PERISCOPE OF MEDICAL AND GENERAL SCIENCE IN THEIR RELATIONS TO DENTISTRY.

BY GEO. J. ZIEGLER, M.D.

"On some of the Evil Effects Produced by Retaining Carious Teeth and Stumps in the Jaw. By SAMUEL A. PARKER, ESQ., Surgeon-Dentist to the Birmingham and Midland Counties Dispensary for Diseases of the Teeth.

"Neuralgic Affection of the Face arising from a Carious Wisdom Tooth; Removal of the Tooth; Cure of the Neuralgia.—CASE 1. A young lady consulted me, in the month of April, 1858, respecting violent periodical pain on the left side of the face, shooting through the ear, the temple, and along the side of the lower jaw; but the root of the tongue was the seat of such violent pain that for two or three hours together the head was completely drawn downward. These paroxysms lasted at times some six or eight hours, and nothing relieved them but strong narcotics. Upon an examination of the mouth, I found the left lower wisdom tooth decayed to the edge of the gum, and the surrounding parts highly inflamed. Although the tooth was not painful in itself, I felt persuaded it was the sole cause of all the patient's suffering. I advised the immediate removal of the tooth, together with one or two decayed stumps in another part of the mouth. The patient readily consented to the operation, but at the same time was very unwilling to believe that the pains had any origin in her teeth. I extracted the tooth and stumps, since which time the patient has been quite free from pain.

"Fistulous Opening in the Lower Jaw, arising from a Decayed Lower Molar Stump; Removal of the Stump, and Cure of the Fistulous Opening.—CASE 2. Harriet E., aged fifteen, applied for relief at the Dental Dispensary, in the month of December, 1858, respecting a foul fistulous opening in the lower jaw, and also a small abscess underneath the chin, both of which were discharging very profusely at the time I saw her. The patient was in a very weak and exhausted state from the continual discharge, which had lasted for a period of nine months. Various remedies had been resorted to in order to check the flow of pus; but so long as the irritant remained, so long was the mischief likely to continue. Upon passing a probe through the opening, it came in contact with the stump of the first permanent lower molar, the crown of which had been fractured in an attempt to extract the tooth. I removed the stump with Thompson's elevator, an admirable instrument in such cases; a considerable quantity of pus followed the operation, and the patient experienced immediate relief. December, 16th, 1858. Very little discharge; health much improved. January, 1859. Cured.

"Neuralgic Affection of the Face Caused by Decayed Stumps; Removal of Stumps, and Recovery.—CASE 3. A young woman consulted me respecting some artificial teeth she required to replace the central and lateral incisors, canines, and first bicuspid of the upper jaw. The natural teeth had decayed away and broken off, without giving any pain, leaving the stumps in the jaw. She had been subject to most violent pains in the face, principally in the temples; could assign no cause for the pains, never having had any toothache; could get no sleep at nights, unless induced by strong narcotics; was totally unfit to follow any occu-

pation; and, from continual suffering night and day, her life was rendered perfectly miserable. I advised the removal of all the stumps before inserting any artificial teeth. Moreover, I refused to furnish any new ones unless she had undergone the operation, well knowing they would be perfectly useless to her. After some hesitation, she consented to have them removed, which was done in three sittings. Since the first was taken out a decided improvement had set in, which continued daily until she was quite free from pain. My patient now enjoys excellent health, sleeps well, and follows a light occupation. The artificial teeth have been inserted, and are a source of great comfort as regards mastication, articulation, and personal appearance.

"Cases like these show the importance of carefully examining the mouth previously to inserting artificial substitutes, and the removal of all teeth and stumps likely to cause irritation.

"Abscess in the Palate Cured by the Removal of a Carious Stump.—CASE 4. A man about fifty years of age consulted me respecting a large abscess occupying a considerable portion of the left half of the palate, which was at the time he consulted me discharging, and had been for a considerable time, the pus exuding between the central incisors in large quantities whenever the abscess was pressed with the finger or tongue. The teeth that remained in the jaws appeared perfectly healthy; tapping each gently gave no evidence of sensitiveness. The stump of the left superior canine remained firmly imbedded in the jaw, which I immediately suspected to be the cause of the mischief. My opinion was further strengthened by the information I obtained, that the patient had been in the habit of trying silver coins between his teeth for the purpose of testing their genuineness, his occupation being one in which a considerable amount of money passed through his hands. This habit no doubt brought on periostitis and its resulting suppuration. The canine tooth ultimately decayed and broke off, and the abscess appeared very shortly afterwards. The patient consented to the removal of the stump, and although, from its deep-seated position, the operation was attended with some little difficulty, it readily yielded to the forceps generally used in such cases. Very little pus followed the operation, but a considerable quantity of blood was lost. At the apex of the stump I found a small sac, clearly indicating that the stump was the irritant that caused so much annoyance to the patient.

"Since the operation I have heard that the abscess has entirely disappeared, and the patient's mouth has resumed its natural healthy condition.

"Palatine Abscess Caused by a Decayed Molar; Removal of the Tooth, and Cure of the Abscess.—CASE 5. A young woman consulted me in the month of August, 1858, respecting an abscess situated on the left half of the palate, which, when pressed, discharged round the necks of the teeth on that side of the face. This case was very similar to the last, and the disease had its origin in the first permanent molar, which was considerably decayed. There was no pain whatever in the tooth. The surrounding parts were slightly inflamed, and the continual discharge caused the patient great uneasiness, and rendered the breath very offensive. I immediately removed the tooth, when a considerable quantity of pus followed. I saw the patient again in the following month, when the abscess had entirely disappeared. The remaining teeth are healthy, well formed, and very regular.

*"Morbid Growth of the Gums Caused by Decayed Stumps; Removal of the Stump, and Disappearance of the Morbid Growth.—*CASE 6. A boy, twelve years of age, was brought to me for advice respecting his gums, which I found, upon examination, to be swollen so much as to hide a greater part of the teeth; in some places the tips of them alone could be seen. A slight discharge oozed from the necks of the teeth. They bled profusely upon the slightest touch, and were so sensitive that the softest substances coming in contact with them gave great pain. He was unable to take any food, and had for some time lived upon beef-tea and fluids. A minute examination pointed out to me the cause. Several loose stumps could be distinctly felt, which were acting as powerful irritants. These I managed to remove, but not without some difficulty, on account of the extreme pain caused by any instrument coming in contact with the gums. I freely scarified them, and ordered an astringent gargle, composed of half an ounce of tincture of myrrh, and seven ounces and a half of compound infusion of roses, to be used several times a day; and the teeth to be carefully cleaned as soon as the gums had assumed a more healthy appearance.

"In about a fortnight, I had the satisfaction of seeing that, by carefully following out my instructions, the mouth was very comfortable. I removed two more loose stumps, and also the first permanent molar in the upper jaw, which was decayed to the edge of the gum, and ordered the patient to continue the gargle. In the course of two or three weeks the lad was perfectly well."—(*Lancet*, March 31.)

*"On the Osteogenic Properties of the Periosteum.—*Much has of late been done and written in Paris, especially by M. OLLIER, respecting the certainty with which bone is reproduced when it is carefully removed from the periosteum with the chain saw. Cases have been published by M. Larghi, of Vercelli, M. Borelli, of Turin, and M. Ollier himself, where from three to four inches of the humerus and tibia were removed for cystic disease, with careful preservation of the periosteum, and in which the bone was reproduced. A case of tubercular affection of the ascending branch of the lower jaw is also mentioned, where M. Maisonneuve removed the bone and left the periosteum. Here again bony matter was secreted. M. Verneuil has resected the elbow-joint, and removed three inches of the humerus and one of the radius and ulna, besides the diseased articular surfaces. Sound portions and shreds of periosteum were preserved, and the result has been pretty satisfactory.

"Now, all these cases are looked upon by M. Sédillot, of Strasburg, as unsatisfactory, and he is at issue with M. Ollier as to the reality of the reproduction of the bone in its integrity. The matter has been brought before the Surgical Society of Paris, and will be sifted by a committee.

"M. Forget, the author of a valuable article on the subject in *L'Union Médicale* of the 21st ult., says, very justly, that the dispute arises mainly from the absolute manner in which M. Flourens, the first observer of the wonderful osteogenic properties of the periosteum, framed his opinion. Take away the bone, says M. Flourens, and the untouched periosteum will reform the bone. It were perhaps more just to say: take away the bone, and the preserved periosteum will yield *osseous matter*.

"It may here be mentioned that M. Langenbeck, of Berlin, has lately made a very ingenious application of the osteogenic powers of the

periosteum, to reach the basilar process whereon was implanted a nasal polypus, by cutting through the face without giving rise to disfigurement. After having detached the os nasi and the orbital process of the superior maxilla, a portion of periosteum was saved, by which the bones remained connected with the neighboring parts. When the polypus had been removed, the whole of the resected bones, with the soft parts, were carefully replaced, and the gaping aperture effectually and appropriately closed. This case, mentioned in the *Deutsche Klinik*, No. 48, 1859, was thoroughly successful."—(*Ibid.*, March 3.)

Reproduction of Bone.—"M. Sédillot, of Strasburg, in a note addressed to the Academy of Sciences in December last, denied that there was any well-authenticated case of complete osseous regeneration under the periosteum, sufficiently produced to replace the ancient bone and fulfill its functions.

"In reply to this, M. Ollier cited, in a subsequent sitting, several cases drawn from the practice of experienced surgeons, to sustain his views, showing that the movements were preserved, and the various functions of the original bone maintained. At a still more recent sitting, M. Ollier contributed a note upon the transplantation of bone taken from animals dead a certain length of time, which goes to show still more forcibly the remarkable aptitude which these tissues have to unite. 'Not only has he transplanted entire bones immediately from the midst of the tissues of a living animal, but he has succeeded in reviving them upon another animal of the same species, although the animal from which they were taken had been dead some little time.' 'The vitality of these tissues,' says M. Ollier in this note, 'is not extinguished with the circulation and respiration; transplanted into a situation analogous to that they formerly occupied, they continue to live and to grow to a certain degree, according to the laws of their normal development.'

"'Portions of periosteum taken from rabbits which have died either from hæmorrhage, or from a section of the medulla oblongata, were engrafted, and gave osseous productions ten, thirty, sixty and eighty minutes after the heart had ceased to beat. Entire bones, (humerus, tibia, radius, etc.,) transplanted ten, thirty, and sixty minutes after death, united perfectly. In these different experiments the union was real; since the transplanted bones presented, at the end of five months, the following characteristics: They were perfectly adherent to the tissues in which they had been placed; they were covered with a subperiosteal osseous layer of new formation; they were permeable to injections thrown in by the arteries.'"—(*Am. Med. Monthly*, April, 1860.)

Odontocoele.—DR. E. MORDECAI, of Mobile, reports the following, among other cases of interest, in the *N. Orleans Med. News* and *H. Gaz.* for April, 1860:—

"Osseous tumor, resulting from a development of the associated germs of supernumerary teeth, occurred in the case of S., aged nine years, daughter of E. M. P——e, Esq., a well-known gentleman of Cahawba, Ala. It caused an expansion, first, of the *body* of the right horizontal ramus of the lower jaw-bone, (attended with intense suffering and much deformity of the face,) and subsequently, of the *alveolar* process. The *latter* assisted in forming a cavity, lined apparently with mucous membrane, in which the osseous substance was completely imbedded and concealed.

"This tumor—brittle, of a pale yellowish color, compact externally, slightly porous within—is an inch and a half in length and conical in shape. Its base, flat and rough, measures an inch in diameter and rested obliquely on the bottom of the cavity formed by the expansion of the ramus and the alveolar process. Its apex pointed upward and backward.

"Developed under prolonged pressure, and resulting from a thorough incorporation of all the elements of dental tissue, this osseous *conglomerate* is chiefly composed of dentine, out of which crop brilliant points of enamel.

"The diagnosis expressed, and *written*, before the removal of the tumor, was as follows: 'It is probable that the development of the amalgamated germs of the molar teeth has expanded the horizontal portion of the lower jaw-bone. The osseous mass now occupies the position of the teeth, and will probably be found to consist of bone proper (of the teeth) irregularly mixed with enamel.'

"The eruption of one or more teeth, *since the removal of the tumor*, from points directly beneath its former bed, proves that the dental germs which formed it were *supernumerary*.

"My diagnosis, though not absolutely correct, (for supernumerary germs were never dreamed of,) was sufficiently near the mark to lead to very important results.

"In order to set forth fairly its practical value, and to show the necessity of great caution in the examination of *such* cases, it may not be improper to state, that when I first saw the child, the condition of the jaw mentioned above had existed for nearly *two years*, and, it is scarcely necessary to add, had given rise to the most anxious solicitude. The case had been examined by many surgeons beyond the limits of this State, (Ala.,) and the opinion generally prevailed that the inferior maxillary was diseased, and the resection of the bone was inevitable, immediately or prospectively. In accordance with this view the father of the patient was in search of a surgeon to perform the operation.

"Now, the following considerations seemed to warrant a different conclusion: the age of the child—absence of the molar teeth on the affected side—the intensity of the pain during a period which, as well as I could elicit from a searching inquiry into the history of the *swelling*, appeared to be coincident with that of the expansion of the jaw—the subsidence of the pain, in a great measure, after the deformity of the face had reached its maximum, and lastly—a *je ne sais quoi* which attends every case, and which (to make a paradox) must not be overlooked.

"Those who had previously examined the case had, in my opinion, been misled by referring the absence of the teeth and the accompanying symptoms to an idiopathic affection of the jaw-bone; and by not attaching due importance to the influence which the teeth themselves, irregularly developed, and unsuccessfully attempting to effect eruption, might exert in producing the phenomena.

"Taking this view, and bearing in mind the well-known trouble which the wisdom tooth sometimes occasions at a more advanced period of life, it was not a difficult matter to locate in the jaw a cause independent of *inflammatory* or *malignant* action, through which the signs might be interpreted.

"Confident of this, and unwilling to frighten the child by a display of

surgical instruments, I placed her in the hands of an eminent dentist, Dr. R. O. Shaw, of New Orleans, who, after very free scarification, etc., succeeded, with some trouble and force, in elevating from its socket the mass which I have undertaken to describe. Extracted March 24, 1858. Result—a complete cure *without injury* to the inferior maxillary, and without the necessity of an *external incision*.”

The Electric Light Applied to Surgery.—One of the greatest obstacles to the success of a surgical operation is the scanty and imperfect light which, in some cases, is the surgeon's only guide, and is fraught with danger to the patient. Thus the extirpation of a naso-pharyngian polypus is almost performed in absolute darkness, it being impossible to bring a common light near enough to the patient without scorching him. The problem, therefore, of finding a light which might be introduced into a cavity with impunity, remained still to be solved; and from a communication sent in a few days back to the Academy of Sciences, by MM. Th. Dumoncel, Foussagrives, and Ruhmkorff, it would appear that this desirable object has at length been attained. Dr. Foussagrives having long entertained the idea that the electric light might be advantageously applied to the purpose, communicated his views to M. Dumoncel, a distinguished electrician, who, calling to mind the effects of electricity *in vacuo*, as exemplified in Giessler's tubes, which, although traversed by the electric light, reveal no increase of temperature, conceived the following plan for turning this circumstance to account in surgical cases of the nature alluded to. A glass tube, having a very small bore, is bent into the form of a helix or screw (the smaller the bore, the greater is the brilliancy of light;) by this means, a kind of luminous cylinder is formed, which is sufficiently small to be conveniently introduced even into a narrow cavity. Thus the first part of the problem was solved; but the color of the light was yet to be determined, since this depends on the nature of the gases introduced into the tube. As mixtures of certain gases, such as carbureted hydrogen, carbonic acid, hydrochloric acid, etc., will produce a white light, nothing remained but to fill the tube with such a mixture; and this delicate operation was intrusted to M. Ruhmkorff, who at the same time introduced other valuable improvements into the apparatus. The latter has since been successfully tried in various dental and other operations.—(*London Chem. News*, March 3.)

Soluble Glass.—At the request of the Austrian Society of Civil Engineers, Lielegg has studied soluble glass, both with regard to its chemical properties, and its applications.* He first examined three specimens of the soluble glass from three different manufactories, and found their composition as follows:—

	I.	II.	III.
Water.....	65.879	38.66	0.689
Silica.....	22.258	44.64	63.6
Soda.....	11.178	16.252
Potash.....	34.4

- I. Was silicate of soda made by Liedel, of Liesing.
- II. Silicate from a manufactory in Munich.
- III. Silicate of Potash by Kuhlmann, of Lille.

* Polytech. Journ., Bd. cliii. s. 44.

The richer the glass is in silica, the less fusible it is. To attain the maximum of fusibility, it must contain both soda and potash.

By pouring a concentrated solution of silicate of soda into alcohol, there is formed by degrees a mucous deposit insoluble in alcohol, which hardens after some days. This deposit is soluble in water. The alcoholic mother liquor contains all the impurities in the soluble glass employed. This process of purification is specially applicable to the soluble glass destined to be used in stereochromy.

By triturating soluble glass with quick-lime, the silicate rapidly hardens, forming silicate of lime and caustic soda. Exposed to the air, the mass becomes covered with an efflorescence of carbonate of soda.

With oxide of zinc soluble glass forms a viscous liquid containing some silicate of zinc, which has already led to the idea of using soluble glass with oxide of zinc in painting.

Combined with hydraulic lime, the silicate forms a good cement for fastening stones: united with fluor spar and powdered glass, it becomes like porcelain or marble. Two parts of fluoride of calcium and one part of glass in impalpable powder, must be made into a semi-fluid mass, with a solution of soluble glass of 36° Baume. This is applied to the parts which are to be joined, and the pieces are then pressed together until the cement is dry, which will be at the end of some days.—(*Ibid.*)

“*Voltaic Narcotism.* By L. H. STEINER, M.D.—Dr. Althaus, of London, in an article in the *Vienna Medical Weekly*, thus disposes of this subject as proposed by Dr. Richardson. It is well known that many experiments have been made to introduce medicinal agents into the organism by the help of galvanism, employing the *locomotive* force of the constant current by means of which liquids can be transported from one pole to another, without decomposition. Experiments on this subject were principally made by Sir Humphrey Davy, and more recently by Wiedemann. Experiments with the view of introducing medicinal agents may be considered as having failed, since the results claimed by Faibré-Palagret have not been confirmed by any one, and the experiments of Klencke and d'Hassenstein are generally doubted. Dr. Richardson claims, however, to introduce narcotic liquids into a portion of the body by the aid of electricity, and even to produce anæsthesia in this way. He styles this method *voltaic narcotism*, and for some weeks made considerable noise with it in the London hospitals, until Professor Waller, of Birmingham, advanced the opinion in a lengthy article, that the anæsthesia produced in this way was simply due to the absorption of the narcotic substances. Dr. Richardson had stated that the local application of these substances, *without* electricity, never produced anæsthesia, not even when they were applied on a part as delicate as the ear of a rabbit. This is clearly not so, for in an experiment made by Dr. Althaus with chloroform and the constant current, complete anæsthesia of the skin was produced when pressure was employed for about ten minutes, a sponge being employed saturated with chloroform; the simultaneous action of the sponge and the poles of the galvanic battery did not, however, hasten the production of the anæsthetic effect. An hour after the experiment he experienced a very acute pain, and on the next day there was developed an active inflammation, which lasted nine days, terminating in suppuration. During all this time the pain was severe, (*atroce*), especially at night; the cicatrix formed slowly, first at the places where

the chloroform alone had been applied, then at those where chloroform and galvanism had been used. Professor Waller made experiments on animals with the narcotic solution, (equal parts of tincture of aconite and chloroform,) proposed by Richardson, and they died in a short time after the experiments, in consequence of poisoning of the blood by the narcotic solution. It is, then, possible that such a disastrous effect might be produced on children, especially such as were debilitated, if operations were practiced on them by the aid of voltaic narcotism. From all this, it follows that chloroform,* despite the attacks made upon it, is thus far the only means really useful, and relatively devoid of danger in the production of anæsthesia in surgical operations, and that all other means proposed to replace it have been demonstrated as insufficient."—*Wiener Med. Wochenschrift*.—(*Am. Med. Monthly*.)

"*Scientific versus Practical Instruction*.—The following testimony of Liebig as to his famous school at Giessen, is worth considering in these days of schools of practical science.—*Silliman's Journal*. 'The technical part of an industrial pursuit can be *learned*: principles alone can be *taught*. To learn the trade of husbandry the agriculturist must serve an apprenticeship to it: to inform his mind in the principles of the science, he must frequent a school specially devoted to this object. It is impossible to combine the two; the only practicable way is to take them up successively. I formerly conducted at Giessen a school for practical chemistry, analysis, and other branches connected therewith, and thirty years' experience has taught me that nothing is to be gained by the combination of theoretical with practical instruction. It is only after having gone through a complete course of theoretical instruction in the lecture-hall that the student can with advantage enter upon the practical part of chemistry. He must bring with him into the laboratory a thorough knowledge of the principles of the science, or he cannot possibly understand the practical operations. If he is ignorant of these principles, he has no business in the laboratory. In all industrial pursuits connected with the natural sciences, in fact, in all pursuits not simply dependent on manual dexterity, the development of the intellectual faculties by what may be termed school learning, constitutes the basis and chief condition of progress and of every improvement. A young man with a mind well stored with solid scientific acquirements, will, without difficulty or effort, master the technical part of an industrial pursuit; whereas, in general, an individual who is thoroughly master of the technical part may be altogether incapable of seizing upon any new fact that has not previously presented itself to him, or of comprehending a scientific principle and its application.—*Liebig, Letters on Modern Agriculture, edited by John Blyth, M.D.*'"—(*Annual of Sci. Discovery*.)

"*Spontaneous Ptyalism Prevailing as an Epidemic*. By JAMES J. ROOKER, M.D, Castleton, Marion County, Indiana.—On the 29th day of November, 1859, I was requested to call in consultation with the attending physician, Dr. Ruddle, to see the family of Daniel West. I was informed that five of his children were salivated. On my arrival I

* The translator must dissent from the statement of the author here. The voice of the profession is demanding that ether be the sole agent employed in producing anæsthesia.

found the family in a deplorable condition; the eldest, a boy about ten years of age, had almost lost the entire lower lip from ulceration. The indications were, profuse flow of saliva, and a decided mercurial fetor; considerable febrile excitement; loss of appetite; irritability of the bowels. The other cases were not so bad, but all partook of the same character. My first impression was, that the attending physician had been using mercurials, and that there was in this family an idiosyncrasy against its use. In consulting with Dr. Ruddle, he informed me that a fortnight previous he was called upon to prescribe for three of the children for an ague, but at no time had prescribed any preparation of mercury. Knowing the veracity of Dr. Ruddle, I had to abandon my former opinion. Knowing the high reputation chlorate of potash has in the treatment of mercurial ptyalism and kindred affections, I proposed its use, which was readily consented to by the attending physician. It was given in the usual doses, and also used as a mouth-wash. This treatment was continued for six days, but was found to be an entire failure; it was discontinued, and a tonic course pursued, with a wash of sulph. of copper for the mouth. Under this treatment they all commenced improving, and gradually recovered.

"I will also give the following interesting case, as the patient's previous health had been good, and she had taken no medicine for some time :—

"On the 19th of October, 1859, I was called to see Mrs. James L. Beck, æt. 30. She informed me that one week previous, she was taken with a sore mouth, profuse flow of saliva, and a tender and swollen condition of the gums. She also informed me that a few years ago she was severely salivated by the use of calomel, and that the present attack was entirely similar. Present condition : profuse flow of saliva, gums swollen and ulcerated, looseness of the teeth, a decided mercurial fetor. She was put on a tonic treatment; I did not use the chlorate of potash, as I had so often found it a failure. I might enumerate many similar cases, but I do not deem it necessary. This epidemic, if it may be so called, prevailed for about three months, attacking mostly women and children. I found in my practice in every case where mercury was used, that it was followed by more or less salivation; so much so, that I had to abandon its use entirely in my practice.

"*Remarks.*—The above short and imperfect report is interesting and instructive, from several considerations. First, as to the rarity of the disease; some of the oldest practitioners of this locality say they never were called on to prescribe for the disease before, and were very much perplexed in making a diagnosis. Second, in a medico-legal point of view, no doubt but some of us would have been prosecuted for malpractice, had not the mass of the people been convinced that it was prevailing as an epidemic. My third object in this report, is to show the entire failure of chlorate of potash. The cases were well selected for its use, but it was found to be of no benefit."—*N. Y. Med. Press.*

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 "*Final Causes.*—The investigator, if he starts with any one clear conviction, it is that every part of a living creature is cunningly adapted to some special use in its life. Has not his Paley told him that that seemingly useless organ, the spleen, is beautifully adjusted as so much packing between the other organs? And yet, at the outset of his studies, he finds that no adaptive reason whatsoever can be given for one-half of

the peculiarities of vegetable structure; he also discovers rudimentary teeth, which are never used, in the gums of the young calf and in those of the fœtal whale; insects which never bite have rudimental jaws, and others which never fly have rudimental wings; naturally blind creatures have rudimental eyes; and the halt have rudimentary limbs. So, again, no animal or plant puts on its perfect form at once, but all have to start from the same point, however various the course which each has to pursue. Not only men and horses, and cats and dogs, lobsters and beetles, periwinkles and mussels, but even the very sponges and animalcules commence their existence under forms which are essentially undistinguishable; and this is true of all the infinite variety of plants. Nay, more, all living beings march side by side along the high road of development, and separate the later the more like they are; like people leaving church, who all go down the aisle, but having reached the door some turn into the parsonage, others go down the village, and others part only in the next parish. A man in his development runs for a little while parallel with, though never passing through, the form of the meanest worm, then travels for a space beside the fish, then journeys along with the bird and the reptile for his fellow-travelers; and only at last, after a brief companionship with the highest of the four-footed and four-handed world, rises into the dignity of pure manhood. No competent thinker of the present day dreams of explaining these indubitable facts by the notion of the existence of unknown and undiscoverable adaptations to purpose. And we would remind those who, ignorant of the facts, must be moved by authority, that no one has asserted the incompetence of the doctrine of final causes, in its application to physiology and anatomy, more strongly than our own eminent anatomist, Professor Owen, who, speaking of such cases, says—‘On the Nature of Limbs,’ (pp. 39, 40.)—“I think it will be obvious that the principle of final adaptations fails to satisfy all the conditions of the problem.”—(*Med. Times & Gazette.*)

“Disease of the Alveolus and Antrum.”—Mr. Fergusson, in his remarks after an operation on Saturday last, for the removal of disease affecting the alveolus and antrum, made some important and interesting observations, having reference generally to the exposure of such parts prior to the removal of the actual disease. He said that formerly, and even now, some surgeons were in the habit of freely dividing the integument of the cheek, lip, etc., trying to get at the disease from various points. Mr. Fergusson said that one method he pursued with advantage (as in a case of removal of malignant disease of the upper jaw, recorded in our pages some few months ago,) was to divide the upper lip in the median line, and then by carrying the incision on one or both sides, as the circumstances of the case required it, into the nose, to dissect back the upper lip, ala nasi, and cheek, and thus expose the parts freely, avoid the deformity of scar on the cheek, or, to use his words, ‘to leave as few marks of the surgeon’s doings on the face as possible.’ In the case before us—a young woman—he was able to remove the disease without interfering with the lip. It affected the alveolar ridge of the right side, extending from the second incisor to the second molar, and was continued into the antrum; but whether it first arose in the antrum or the alveolus, he did not know. Mr. Fergusson attributed the success attending this method of removal, in a great measure, to the instrument he used, viz., a pair of clipping forceps. He first clipped away the alveolar ridge, and

then attacked the portion of disease situated in the neighborhood; by this means freely laid open the antrum and nostril. Mr. Fergusson stated that in this case the disease was of a fibro-gelatinous nature. He alluded to a case in which Mr. Bowman successfully removed a large tumor from the antrum extending into the mouth, without dividing the lips."—(*Med. Times and Gaz.*)

MISCELLANY.

Increasing interest is being manifested in the study of the physiology and pathology of the living molecule or organic cell. Prominent among those engaged in the investigation of this subject is PROF. VIRCHOW, a brief abstract of whose views thereupon is thus given in the *Annual of Scientific Discovery* for 1860. "Virchow, the eminent German physiologist, in a recently published series of lectures, on what may be called 'Cellular Physiology,' defines the *cell* to be an exceedingly minute microscopic object, consisting of a membrane containing a substance in which is a nucleus upon which the action of the cell depends. All pathological [physiological?] processes proceed from changes in and multiplications of previously existing cells. A cell can only arise from a pre-existing cell, and never *de novo*. The germ of life is a cell transmitted and impregnating an ovum. The whole scheme of animal development, both physiological and pathological, is but a continuation of the process begun in the ovum upon the cell—the first step in gestation. He denies the formation *de novo* of 'granules,' or any other tissue-form of the old pathologists, from a so-called *Blastema* or of homogeneous exudation. That is, since the creation of the first man and woman, the race has been kept up by, and every physiological and pathological phenomena has had its origin in, the division and multiplication of cells—the difference between the phenomena of physiology and pathology being only that of normal or morbid action in similar forms."

Much information upon this subject may be obtained from an able and somewhat elaborate notice thereof, with special reference to Virchow's views as set forth in his lectures and work on "*Cellular Pathology, based on Physiological and Pathological Histology*," by G. H. BAUMGARTEN, M.D., in the January number of the *St. Louis Med. and Surg. Journal*, for the current year. The following short extract therefrom is both comprehensive and instructive. "The animal organism, like that of plants, is composed of cells, with a formless agglutinating mass, which holds them together. Each of these cells has its distinct and individual function; it is an organism with a life of its own, though dependent for the elements of life upon the harmonious action of the whole. And if we grant to every cell an individual function,—a point, which at present no one will gainsay,—we must likewise concede that this function may become deranged, thus producing disease; and as well the blood as a whole, or the nervous system, may become deranged in function from an external cause, so may each individual living cell for itself become diseased alone, without disease, in the first place, of its vicinity. And this principle, viz., that a single cell, or a group of cells, operated upon by the same cause of disease, may be altered chemically, morphologically, and functionally, without any primary affection of the blood or the nervous system,—is the basis of the 'cellular pathology' of Prof. Rudolphus Virchow."

There is very little doubt but that cell action has much to do with the

pathological as well as physiological processes of life, and that they are both, in fact, always more or less directly connected with it. This connection appears to be especially intimate in various conditions, of both a normal and abnormal character, and particularly in that morbid state termed inflammation, which is now so generally regarded as but an anomaly of nutrition, the essential element of which doubtless is in reality a special form of deranged cell action. The correctness of this view is more probable from the fact that it serves to explain very fully the characteristic phenomena of phlogosis, as is well shown in the following summary from the review above mentioned. "By this cellular theory on inflammation, all the cardinal symptoms can be satisfactorily explained. The increase of temperature is explained in part by the hyperæmia, in part by the accelerated metamorphosis of tissue, the greater chemical action of the elements; the redness, by the hyperæmia; the swelling, by the luxuriance or enlargement of cells, or by the exsudation; and the pain, partly by the effect the primary irritation has upon the sensitive nerves, and partly by the pressure and distortion which these suffer from the swelling elements and interstitial exsudation—perhaps also by the altered states of nutrition in the nerve-fibres themselves."

In the course of some remarks upon the difficulty of estimating the precise value and character of vital phenomena (*Med. Times and Gaz.*, Jan. 14,) M. C. BERNARD observes: "All exact calculation of physiological phenomena is at least premature; up to the present time it has been an easier matter to observe facts than to calculate them. To quote still another example of calculation of this kind, I may call to your recollection the efforts made to estimate, by this method, the quantity of saliva which a gland was capable of producing in a given time; but these organs are so variable in their action, and the intensity of their secreting power is subject to so many different causes, that, up to the present time, calculation has produced only contradictory results. Not to multiply examples uselessly, let me simply add, that it is far preferable, in the present state of science, to observe the extreme limits of phenomena, and to infer from them, by a kind of compensatory calculation, their average intensity, admitting, as possible, every intermediate degree. In a word, it is impossible for us, in the present state of science, to pretend to anything like a rigorous precision in the study of vital phenomena—it is *qualitative* and not *quantitative* analysis which is required in Physiology."

In the review of *Parisian Med. and Surg.* (*N. Y. M. Rev.*) it is stated by DR. MACK, that M. MATTEUCCI reported to the *Acad. of Sciences* that the electric current has no action upon a nerve, except along its length; also that the electromotor power is greatly diminished in the muscles of frogs killed by the *curare* poison.

The reviewer also states that M. BIXET commends iodine highly as a preventive and cure for purulent infection, and gives the following quotation from his paper: "Iodine, or its preparations, by its specific action, particularly upon inflamed tissues, is not only a remarkable antiseptic, but also a veritable antiphlogistic, which has the property, in modifying the inflamed surfaces, of diminishing, arresting, and dispersing inflammation. It acts thus in a great number of inflammatory cutaneous affections, in erysipelas, angioleucitis, in the pustules of variola, where it suffices to abort or make those inflammations disappear, to practice a few paintings of tr. iodine with a brush upon the skin or mucous membrane inflamed." The writer can testify to the great practical value of this agent both as an

antiseptic and antiphlogistic, and besides as an antitoxic in destroying poisonous matter which may be applied to the surface.

A striking instance of the value of regular and graduated exercise in improving the sight is given in the report of the Pro. of the Buffalo Med. Association. (*Ibid.*) in the case of DR. WM. K. SCOTT, aged 72, who states that "three years ago his eye-sight was so imperfect that he could not read any ordinary print without the aid of spectacles, as had been the case for many years previous. At that time he had occasion to do some writing so fine as to require the aid of a magnifying glass. After writing at intervals for a few days, he found his eye-sight improved; and knowing the effect of exercise upon all our faculties, concluded to systematically pursue this exercise of the eye, and note the result. The writing was done upon an enameled card with a metallic point. The glass used was a common pocket lens, with a focal distance of $\frac{7}{8}$ of an inch, which was held in the left hand while writing. In this manner a little was written nearly every day, always stopping before the eyes were fatigued. When what was at first thought to be very fine writing could be easily done, still finer was attempted, until he could read with ease the finest print without spectacles. Since that time this exercise has been omitted, and his sight is not now quite as good as it then was, but he believes that writing a few days will make it as good as ever. He finds it difficult to write in hot weather." The specimens presented for examination exhibited an extraordinary degree of caligraphic skill as well as of visual power. The finest one having "on it 225 lines to one inch, with the Lord's prayer written upon a single line of less than one inch in length."

It is well known that the articulating surfaces of joints may become so modified as to more or less completely unite with each other, thus forming what is technically called ankylosis. This may be false or true, partial or complete, cartilaginous or osseous. In the course of some clinical remarks upon this subject (*N. Y. Med. Press.*) PROF. MOTT stated that he had "seen and treated cases of immobility or ankylosis of the lower jaw. In one of these, that of a young man, from North Carolina, whom I treated thirty years ago, complete immobility had existed ten years. I have also treated others since then; two of them this winter in St. Vincent's Hospital. After first cutting from the angle of the mouth through the cheek nearly to the coronoid process, and dividing the adhesions, I placed an instrument composed of two flat plates, and so constructed that by turning a screw they would separate between the teeth, and then turning the screw pried the jaws open. The wounds were afterwards dressed with interrupted sutures and adhesive straps, pieces of sponge being placed inside to prevent the adhesion of the cheeks to the jaws. Those patients completely recovered."

In the report of the proceedings of the Boston Soc. for Med. Improvement (*Bost. Med and Surg. Journ.*) it is stated that "DR. J. C. WHITE showed a section made near the base of a tusk of a large elephant, illustrating the effect of the passage of a rifle ball through the dentinal pulp, from side to side. The ball, which was a large one, of wrought iron, probably entered the thin socket formed by the prolongation of the premaxillary bone in which the tooth was inserted, breaking through the tender pulpy cone, and the toothwall of the other side, and spent its last force against the interior surface of the socket on the opposite side. It then fell back within the hollow it had formed, and became imbedded within the new growth it excited, which consisted of large, irregular-shaped lay-

ers and masses of osteo-dentine; a tissue which was secreted instead of ivory, probably in consequence of the irritation produced by the foreign body."

MR. JOHN M. MAISH gives, in the *Am. Jour. of Pharmacy*, the following recipe for Calamus Tooth Powder, which has been successfully employed by Dr. Pitschaft in scorbutic or ulcerated affections of the gums and carious teeth:—

Take of Calamus Root.	½ an oz.
Charcoal.....	1 dr.
Castile Soap.....	1 dr.
Oil of Cloves.....	20 minims.

Rub them together into a very fine powder.

DR. S. CHOPPIN reports, in the *N. O. Med. Gaz. (Am. Med. Monthly)* "a case of removal of the tongue, for cancer, with the écraseur. The operation lasted fifteen minutes, and was accompanied with no hæmorrhage. This operation is usually accompanied with considerable hæmorrhage, and it is highly probable that the écraseur is, in such cases, a valuable surgical appliance."

In a lecture upon some of the diathetic diseases of childhood, in the *Med. Times and Gaz.*, March 17, DR. WM. JENNER thus notices the difference between children afflicted with tuberculosis and rickets:—

"TUBERCULOSIS.—Nervous system highly developed; mind and body active; figureslim; adipose tissue small in quantity; organization generally delicate; skin thin; complexion clear; superficial veins distinct; blush ready; eye bright; pupils long; eyelashes long; hair silken; face oval, good-looking; ends of the long bones small, shafts thin and rigid; limbs straight. Children the subjects of tuberculosis usually cut their teeth, run alone, and talk early."

"RICKETS.—Mental capacity and power small; muscular force deficient; mind and body inactive; figure short; closure of the fontanelles retarded; face small, but broad; skin opaque, often set with downy hairs. Children the subjects of rickets are late in cutting their teeth, in running alone, and in talking, and their teeth drop early from their sockets."

DR. HOPPE says, (*Berlin Med. Zeit.*, and *ibid.*) that the *tinctura thuix* (American *arbor vitæ*) forms a very good disinfectant for correcting the fetor of unpleasant secretions from the mucous and cutaneous surfaces.

In his notices and sketches of diseases of the tropics (*N. Y. Monthly Rev.*, March,) DR. G. VAN ARCKEN states that "No disease whatever, the slightest ailment, a toothache, for instance, let it continue for a week, and soon the experienced physician will see the pain become periodical, and assume in a few days more the type of an irregular intermittent fever."

DR. ERPENBECK relates (*Schmidt's Jahrb.*, and *Med. Jour. of N. Carolina*) "a case of severe mercurial salivation arrested by the internal use of belladonna. The salivation returned when the remedy was discontinued, and was again checked by it."

The *Scientific Amer.* states that "a most useful composition has been patented, for coating metals, such as brass, with a cuticle of pure silver, by simply rubbing on the compound. With it various articles upon which the silver plate has been worn, may be re-silvered with facility, without fire, heat, or an electric battery to deposit the precious metal."

It also notices another invention, the object of which is "to employ gas or vapor of some volatile and combustible substance for the purpose of

heating crucibles in a small portable furnace. The blaze of the combustible gas or vapor, together with the necessary amount of oxygen, is forced into the furnace and made to pass around the crucible, heating the same very effectually and with little expense. This furnace is particularly applicable to melt small quantities of gold or silver, and in places where gas is used, it will be found of great convenience."

The *Scientific Artisan* says, that "from experiments lately made by M. De Burg, it appears that the tenacity of aluminum lies between those of zinc and unhammered copper, it being 13,590 lbs. per square inch. That of an alloy of 90 parts copper, and 10 of aluminum, and which is now called aluminum bronze, is 80,000 lbs. per square inch, and is therefore intermediate between the tenacities of steel and soft iron."

A correspondent sends the following recipe to the *Am. Drug. Circ.*, and says that it will make a superior glue:—

Take of Best White Glue.....	16 ounces.
White-Lead, dry.....	4 "
Rain Water.....	2 pints.
Alcohol.....	4 ounces.

With constant stirring dissolve the glue and lead in the water by means of a water bath. Add the alcohol and continue the heat for a few minutes. Lastly pour into bottles while it is still hot.

The following plan is recommended (*Jour. of Pharmacy and Louisville Med. News*) for giving various objects a pearly lustre: "To produce the iridescence of the mother-of-pearl on stone, glass, metal, resin, paper, silk, leather, etc., Reinsch adopts the following process: 2 parts of solution of copal, 2 parts of that of sandarach, and 4 parts of solution of damara resin (equal parts of resin and absolute alcohol,) are mixed with half their volume of oil of bergamot or rosemary. This mixture is to be evaporated to the thickness of castor oil. If this varnish be then drawn by means of a feather or brush over the surface of some water, it will form a beautifully iridescent pellicle. This film is now to be applied to the objects which are to be rendered iridescent. The vessel in which the water is contained, on which the pellicle has been produced, must, therefore, be as large as or larger than these objects. The water should have about 5 per cent. of pure solution of lime added to it; its temperature should be kept at about 72°. The objects to be dried in the sun."

In reviewing the lectures of A. A. JOHNSON, Esq., Surgeon to the London Hospital, on the "surgery of childhood," a writer in the latter journal states that in the case of hare-lip "he is decidedly in favor of an early operation, during the first week, or at the latest during the first three months. In this opinion we fully concur, having several times performed this important little operation between the third and sixth week with the most gratifying results. In fact we know of no reason why it should be deferred, and there are certainly many in favor of its early performance. We thus enable the infant to take its nourishment readily, avoid the deformity which results from long delay, and relieve the mother from a great and ever-present source of mental disquietude. The only unpleasant result of an early operation which we have ever witnessed, was in the case of a child four weeks old, where, just as the operation was completed, a pretty severe convulsion occurred; but it lasted but a few moments, and the child made a good recovery without any recurrence of convulsions."

A few drops of a mixture made of fifteen grains each of chloride of

zinc and perchloride of iron; sixty grains each of alcohol and distilled water; one-third of a grain of muriate of morphia; and fifteen grains of clove, introduced into the cavity of a decayed tooth, is said to be very efficient in relieving odontalgia.

BIBLIOGRAPHICAL.

An Epitome of Braithwaite's Retrospect of Practical Medicine and Surgery: containing a condensed summary of the most important cases; their treatment, and all the remedies and other useful matters embraced in the forty volumes—the whole being alphabetically classified, and supplied with an addenda, comprising a table of French weights and measures, reduced to English standard—a list of incompatibles—explanation of the principal abbreviations occurring in pharmaceutical formulæ—a vocabulary of Latin words most frequently used in prescriptions, and a copious index. In Five Parts. By WALTER S. WELLS, M.D. Medical science is so extensive, medical investigation so active, and medical publications so numerous as to render it almost impossible for any one to acquire and retain a knowledge of everything that occurs, and thus keep *au courant* with the progress of discovery in all that relates to the healing art. Hence the necessity for works of a systematic and comprehensive character, and of easy reference. This want is supplied, to a certain extent, in the current periodical literature by such compends as Braithwaite's Retrospect. Yet as they in time not only become too voluminous and diffuse, but also expensive, further classification, condensation, and reduction in cost become necessary. In the case of the Retrospect just named,—which has now increased to forty volumes,—an attempt has been made by Dr. Wells to meet all the aforesaid requirements, and with so much success as to merit the thanks and patronage of the profession. The three numbers of his Epitome which we have received, present a very valuable summary, in alphabetical order, of the most important matters treated of, that are contained in the original work. When completed, which it will be in two more numbers, it will form a very excellent and practical compendium, and thus constitute a sort of condensed medical library. As it cannot fail to prove very useful, both as a remembrancer and mentor, it should be in the possession of every one interested in medicine. It is published for the author by C. T. Evans, 114 Fulton Street, New York, at one dollar per number, or five dollars for the whole.

Researches on Primary Pathology and the Origin and Laws of Epidemics. By M. L. KNAPP, M.D. We are informed that a second edition of this work will shortly appear. We have read the first, and can commend it, believing it will both interest and instruct.

Scientific Artisan. This is an enterprising weekly of eight pages, quarto, published in Cincinnati at two dollars per annum. It is devoted to the popular exposition of science in its more immediate and practical relations to the mechanic arts. It supplies much useful information, and is well worthy of support.

The Chemist and Druggist is a new English monthly octavo, designed more especially as a trade circular, though a limited space is devoted to the discussion of matters of scientific interest to those engaged in chemical and pharmaceutical pursuits. It may be obtained of C. F. Hinrichs, 150 Broadway, New York, at \$1.25 per annum.

THE
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No. 11.

ORIGINAL COMMUNICATIONS.

PRACTICAL HINTS.

BY J. D. WHITE.

ALMOST daily experience shows that there is very little sound judgment exercised in the operation of extracting teeth, especially in cases that apply for the operation in the alleviation of toothache. When a patient applies for the extraction of a tooth, while suffering from pain, and we can relieve the case without removing the tooth, as a *rule* we do so. There are very many circumstances to be taken into consideration, however. If the patient has never had a tooth extracted and is very young, whether it be a deciduous tooth or a first molar of the permanent set, it is not judicious to attempt its extraction at once, unless it be to prevent some great impending danger. The *moral* influence upon the patient may be such as to injure him much more than the pain from the tooth. It is not unfrequent that the patient has been assured by those in whom he placed confidence, that he would suffer no pain: under such circumstances the tooth should not be extracted. Palliate the pain, or at least make an effort to do so; as a general thing, this can be done, if it be from exposed pulp or incipient abscess. If the patient discovers that this cannot be done, he will much more willingly submit to the operation without it having any unfavorable influence on the mind. Besides, if the tooth cannot be removed with certainty, it should not be attempted, either with young or old: the dentist always receives much more censure for failing in this operation than any other. Sometimes the patient's nervous system is not in a condition to undergo the operation, especially if it were to be prolonged. We have not been caught for many years in making more than a second attempt to extract a tooth, owing to the fact that we observe the greatest circumspection. We estimate the chances of getting hold of the tooth or root, and the *nerve* of the patient to endure pain. Before we believed that it was *not* our duty to attempt to extract a tooth for a patient under any circumstances if the patient suf-

ferred pain or inconvenience from bad taste in the mouth, or a difficulty in keeping the mouth clean, we got into many a scrape. It would be endless to enumerate the cases we know and hear of, where the dentist has tortured the patient for hours, and been at last obliged to abandon the operation. We make it a practice to wait until the tooth is in a *condition* to be extracted. This may sound like timidity or shrinking from our duty by "tooth pullers," but we have the vanity to believe that we do not often fail to do our duty. It is true that many do not do their duty by attempting what must end in failure. It may be inquired, what does it mean, to get a tooth in condition for extraction? We will answer, that if a tooth has decayed much below the border of the alveolus, except the merest shell, and the gum and socket are too hard and too strong to be cut away, it is better to break down the projecting shell or crown and wait for the roots to loosen and rise from the sockets, as they will do in time by the morbid condition of the periosteum, and the absorption of the gums and alveolar border. It often happens that teeth are decayed to the pulp before they are fully erupted, and it is difficult to get to the neck with the forceps. We do not mean that the dentist shall take no risk in attempting to extract a tooth in extreme cases. We always estimate the difference as well as we can between the chances of success in extracting a tooth, and the amount of suffering it may cause by letting it alone. A case or two may illustrate what we mean. A gentleman called to get a tooth extracted a few years since; it was the left inferior wisdom tooth; it was strongly imbedded in a strong and heavy jaw, with little room between the second molar and the ramus of the jaw. It was a case of exposed pulp; we applied the arsenical paste to destroy it, but the patient left us and immediately called upon another dentist to get the tooth extracted, not being satisfied with our treatment. The dentist was a young man, and attempted to extract it. After trying for a long time, he failed to succeed. He called his father, who was a much stronger man, and he failed also, but not until the patient became exhausted, when it was abandoned. The patient was laid up from the effects for several days: we have always operated for the gentleman and his family since. Another case occurred of a lady, who annoyed us very much to get rid of a lower inferior first molar, which was decayed very much, and the gum and alveolus very strong, and the patient nervous, and not able to bear much pain. She finally applied to a dentist, took ether; but the dentist failed to extract it. The parts were very much injured in the attempt. The patient applied to us in great suffering; we touched the margin of the gums with nitrate of silver in the stick, which reduced the irritation of the gums and relieved the pain in a few days. We applied the same treatment again, until a considerable portion of the gum was destroyed and absorbed. In this way the sensibility of the parts were reduced, when we cut away the alveolus and extracted the root with ease.

(To be continued.)

ABSORPTION OF THE FANGS OF THE DECIDUOUS TEETH.

[CONCLUDED FROM PAGE 521.]

MAKING special application of the preceding general principles to the subject under consideration, it is necessary to present in the first place a *brief* description of the *development, growth, and completion* of the deciduous teeth. In the *development* of the papillæ of a deciduous tooth, the first stage is the formation of a *nucleated cell*, and the subsequent growth of the papillæ is due to the multiplication and subdivision of cells originating from the parent cell. As early as the tenth week of utero-gestation, the twenty germs of the milk teeth are found in the primitive dental groove, and by the fourth month, they are completely inclosed in separate cavities or sacs, this last act occurring in such a manner that *reserve sacs* are formed above for the papillæ of the twenty anterior permanent teeth.

By degrees the position of the *reserve sacs* and their inclosed papillæ is changed: from occupying a position above the deciduous germs, they retreat backward and downward until at last they are placed directly under them, and there eventually become surrounded by the bony alveoli. The dental germs here described are those that belong to the inferior maxilla; in the superior, the relative positions, of course, are reversed.

During the period in which these changes occur, the deciduous papillæ, or pulps, increase in size, and assume the forms of the future teeth before the least deposit of calcareous matter takes place. If a *deciduous sac* is examined at this time, the *dental pulp* is found to be composed mainly of nucleated cells suspended in plasma, and a delicate connective tissue, similar to the hyaloid membrane of the eye. A delicate structureless membrane, the *membrana præformativa*, (Raschkow,) in addition covers the pulp. Vessels and nerves are also present, the former being developed in great numbers when ossification commences, though they perform no other office than serving as conduits for the passage of the nutrient material, which escapes by transuding through their coats. Applied to the dental pulp like a cap, is the enamel organ, which consists of an exceedingly delicate reticulated tissue, holding in its interstices a thick, transparent, albuminous fluid, in which peculiar nucleated or stellated cells are suspended. In the outer third of the enamel pulp a few vessels are presented.

The nucleated cells, both in the dental and enamel pulps, at first have no definite arrangement in regard to each other, but are scattered indiscriminately throughout the structures.

In the development of dentine, the first change that occurs in the pulp is the arrangement of the external layer of cells, end to end, in a linear direction. These elongate, coalesce, and are converted into dentine by the

gradual reception of calcareous salts. As soon as a thin cap of dentine is formed upon the apex of the pulp, by a somewhat analogous change in the enamel cells, a deposit of enamel takes place upon and coalesces with the dentine. These two reciprocal actions continue until the crown of the tooth is fully formed. During this time a longitudinal growth of the pulp, and conversion, through centripetal calcification into dentine to form the fang, also occurs. The tooth thus formed is forced up, presses against the gum, which is gradually absorbed, and eruption is effected. After this the tooth is completed by the growth of the remainder of the fang. This is due not only to the formation of additional dentine, but also to the development of the *cementum*, which is formed from materials contained in the plasma furnished by the vessels of the periosteum. By centripetal calcification of the pulp the dentine is thickened, and the pulp cavity diminished in size.

In the tooth thus fully formed, the most ample facilities are afforded for the due nutrition of the dentine and cementum, by the transudation of plasma from the vessels of the pulp, and periosteum, through the dentinal tubuli, and the lacunæ, and canaliculi. For a brief season *repair* is equal to *waste*, and no appreciable change takes place; but eventually a greater or less disintegration of these tissues supervene, and the tooth loosens and falls out, or is extracted.

Exceptions to this rule, however, are presented, in which persons retain such teeth unchanged, and answering all the purposes of the permanent teeth, for years—in some cases even after the fortieth year. Such teeth, though perfectly *firm* in their sockets and the roots *unabsorbed*, have frequently been extracted, under the impression that, having passed the period when they should have been shed, they prevent by their presence the growth and eruption of the permanent teeth; unfortunately for the patients, the looked-for successors have entirely failed to appear.

Occurring, as the absorption of the fangs of the deciduous tooth does, coincident with the development of the permanent, there can be but little question that the change is due to a modification in the nutrition of the organ induced by that cause; for no well-authenticated cases are recorded of observations extending over a period of years in which the deciduous teeth have loosened and fallen out without sooner or later being followed by permanent successors.

To attribute, as some physiologists have done, the exuviation of the deciduous teeth to the fact that they have a definite period of existence, and when this has arrived they fall out as a necessary consequence, is not presenting an *explanation*, but stating a *fact*, to which there are many *exceptions*.

In seeking for the explanation of this phenomenon it should be remembered, as has already been stated, that the germ of the permanent tooth, after a certain period, occupies a position in close proximity to the fangs

of the deciduous tooth, (separated by a bony partition;) in this position it remains for some time in a state of dormant vitality, at least with no increase of size. As long as this continues, no apparent change takes place in the deciduous tooth; but eventually a new life springs up in the permanent germ, it draws from the blood the materials inservient to its *development* and *growth*, and in so doing removes from the current flowing to it and to the deciduous tooth (through arterial twigs from the same main vessel) the constituents necessary to *repair* the *waste* that takes place in the latter. In many instances the supply is equal to the demand of the permanent and deciduous organs; and, under such circumstances, the *development* and *eruption* of the former takes place with little or no absorption of the latter.

In support of the position that atrophy of *hard* tissues may be induced by a deficient supply of nutrient materials, it is only necessary to refer to the experiments of Chossat, who produced artificial atrophy and softening in the bones of animals, by restricting them to a diet in which no calcareous elements were present.

In addition to drawing to itself all or most of the nutrient materials from the neighboring current, as the permanent papillæ increases in size, and the crown of the tooth is formed, it makes a graduated pressure, first, on the capillary vessels of the osseous partition, and then on those of the deciduous tooth, thereby arresting or diminishing the flow of blood distributed to those tissues. By these two causes, not only the *quality* but the *quantity* of the blood sent to the deciduous tooth is modified, and absorption is favored. After the removal of the bony partition, the pressure of the crown of the permanent tooth may be either upon the vessels of the dental pulp or the periosteum of the deciduous. Of the effects of a *graduated* and *continuous* pressure in producing absorption of bone, the atrophied condition of the body of a vertebra, that has been subjected to the pressure of an aneurism, may be cited. In such a case, the pressure upon the capillaries of the periosteum does not cut off the blood entirely, (which, if occurring, would induce *necrosis*,) but merely diminishes the current so that the supply is not equal to the waste, and atrophy is the result.

Again, the influence of the sympathetic nerve in the function of nutrition must not be overlooked. Branches of this nerve are distributed alike to the pulp of the deciduous, and the papillæ of the permanent tooth, and there can be but little question that the development of the one and the absorption of the other is more or less dependent upon this nervous connection. Of the influence of the sympathetic nerve, in the nutrition of a part, the most striking illustration that can be presented is the experiment occasionally performed upon animals, of making a section of the ophthalmic branch of the trigeminus or fifth pair. In a few hours, or in a day or two at the furthest after making the section, inflammation of the conjunctiva takes place, ulceration is eventually established, and the organ is completely destroyed.

Lastly, the fact must not be lost sight of, that the dental tissues are but a *congeries* of *cells*, constituting an animal matrix, in which the calcareous salts are deposited; that these cells have a definite period of existence, and that by molecular disintegration they degenerate and are cast off. As the animal matrix degenerates cell by cell, their calcareous contents are liberated, and become mixed with the fluids, to be taken up by the venous or lymphatic radicals. If, in addition to this waste, there is no supply of new material, atrophy is the result, and thus the fangs of the deciduous tooth disappear.

In conclusion, these views are advanced under the conviction that the changes which occur in the dental tissues are in accordance with, and controlled by, the laws which govern the other portions of the economy; for, in the language of the philosopher and poet, all of the operations of nature are governed "not by partial, but by general laws." Upon the correctness of the views advanced, it is not for the writer to decide. They are, however, his *present* honest convictions on the subject; but, wedded to no theory, and open to conviction, he would willingly change them to-morrow, if satisfied that they are erroneous.

EFFECTS OF DISEASE ON THE TEETH.

BY ABR. ROBERTSON, D.D.S., M.D.

In 1852, I read an essay before the "American Society of Dental Surgeons," which was published in most, if not all, the dental journals of that time, and was intended to show some of the effects of carious teeth on the general health.

I now propose to consider some of the effects of impaired general health—of sickness—on the teeth, and to correct, as far as I may, what I conceive to be a very erroneous and very general impression in relation to the effects of medicines upon the teeth, when administered for the cure or for the relief of diseases.

But as it is not my province to treat the diseases here alluded to, not being a practitioner of general medicine, I shall be obliged to rely mainly on the recorded observations of others for many facts, but whose testimony may be all the more convincing and reliable from the consideration that their observations have been made and the results recorded simply as scientific physiological facts, without reference to any preconceived theory or argument.

The dentist hears no other expression half so frequently as the following, and he always hears it so nearly in the same language as to make it seem as if stereotyped: he hears it, indeed, almost every day, and from all ranks and grades of society—from the most learned and intelligent to the most ignorant and thoughtless: "My teeth were perfectly sound until I was sick, when I took so much medicine that it destroyed them;" or,

"since my health has been bad, I have taken so much medicine that it has ruined my teeth." I have known dentists, too, and some of them eminent in their calling, to tell their patients that their teeth had been ruined by taking medicines, and I believe that physicians even sometimes admit the correctness of the charge!

An expression so universal and so common as this—and the expression, I suppose, is no more common than the belief in its correctness is universal—must have some foundation, and, upon the old maxim that "what every body says must be true," a very strong foundation. Still, paradoxical as it may seem after this admission, it is usually as wide from the facts as any expression well can be,—as diametrically opposed to the truth as the old belief that the sun revolves around the earth.

This, like all other fundamental errors, is productive of great harm. It is an unmerited reproach, an ungrateful stigma, upon that most learned and generous, most brave and benevolent of professions, the medical profession, and their most comprehensive and useful art. It is also a direct injury to those who believe the sentiment. It mars their confidence in their medical advisers, and frequently deters them from, at least willingly, taking the medicines properly prescribed by them for the cure of their diseases.

But do not medicines injure, and often destroy the teeth? Very rarely, if ever, when judiciously and properly taken. If medicines so rarely injure the teeth, what is the foundation of this so universal a belief? To answer this question, and to show, moreover, that medicines properly exhibited tend to preserve rather than to destroy the teeth, is the chief object of this monograph.

Teeth, beyond doubt, decay more rapidly and more frequently after the occasions for the taking of the medicines have occurred than before. Why?—I propose to answer this question as fully as my present means will allow, though not as fully in detail as I could wish, for want of the definite and certain knowledge that is necessary, and which, though I have sought somewhat assiduously, I have not been able to obtain. But I think, from my own observations, and such observations of others as I have been able to avail myself of, there is sufficient evidence to prove the correctness of my views by specific facts as well as on general principles.

First, we will examine the question negatively. Teeth are not destroyed by medicines.

Chemistry proves that most articles used as medicines neither have nor can have any direct action on the teeth. The only exception to this rule being the acids, and those few salts whose bases have less affinity for their acids than has the lime of which the teeth are principally composed.

Dr. A. Westcott, of Syracuse, N. Y., made a very extensive and careful series of experiments, which he published in the *American Journal of Dental Science* for 1843, with the view of ascertaining and of showing the effects of almost all articles used either as food or medicines, when

brought in contact with the human teeth. They were both interesting and instructive, and worthy the perusal of both professional men and laymen.

His experiments demonstrate most conclusively what has already been stated, that but very few articles prescribed as medicines can have any effect on the teeth even when brought into and kept in contact with the teeth, to wit, acids, ethers, (these are derived from a compound of the acids and alcohol,) and such salts as have bases with less affinity for their acids than has the lime of the teeth.

When these acids are given as medicines, especially when the stronger acids are so given, as the sulphuric, nitric or muriatic, great care should be used to prevent their coming in contact with the teeth, either by taking them through glass, gum-elastic or other tubes, or by carefully rinsing the mouth with a solution of carbonate of soda, or some other alkali having a stronger affinity for the acid than has the lime of the teeth, or by both these means; otherwise the teeth may be injured, and, if the taking of the medicine is long continued, they may be destroyed.

In an experience now of more than twenty years of pretty active employment, I have seen perhaps a dozen—but as I have not kept a record of them, that may be much too high an estimate—well-marked cases of severe injury to the teeth by the use of acids given as medicines; but the use of these stronger acids is so small a part of the “*materia medica*” as to be of comparatively little importance, or at most, to account for but an exceedingly small part of the mischief that is charged to the account of taking medicine.

Of the ethers and salts above named, it is enough to say, that they are but little used, and when used, in such small quantities, and their contact with the teeth is slight, and of so short duration, simply passing over them during one act of deglutition, and usually greatly diluted, or most probably, if it is the salts that are being administered, they are either given in the form of pills, or in powders, and covered by some kind of jellies or sauces so that they do not come in contact with the teeth at all, nor are even appreciated by the taste, instead of the teeth being immersed in a considerable quantity of the medicine, and that of full strength, and there kept for at least forty-eight hours, as they were, in the shortest of Dr. Westcott’s experiments, that they can have very little if any influence on the teeth; or, if even all the acid that would come in contact with the teeth during any ordinary course of medication with these substances was entirely neutralized by a single tooth, I doubt whether it would be perceptibly affected by it. Of this, at least, I am quite sure: I have no recollection of ever having seen any well-marked case, or any case, where I had any suspicion that caries of a tooth had been caused by any such remedies, except a very few cases from the free use of the nitrate of silver, and where no precautions had been used to prevent its contact with, or action upon the teeth; and in these cases it has always been used as a local application. But as many teeth, such for example as are naturally

frail or imperfect in their construction, or have already commenced to decay, cannot bear even slight abrasions or corrosions without endangering their usefulness, and of subjecting their possessors to suffering, rinsing the mouth with a solution of soda after taking such medicines, or after taking lemon, citric, or other vegetable acids, would be but a prudent precaution.

There is one salt which so pre-eminently has the reputation of producing decay of the teeth more than any, or perhaps than all other medicines, that it seems to require especial notice. It is the submuriate of mercury. That this drug, given to a certain extent, and under certain circumstances, has a specific and very peculiar and deleterious action on the "surroundings" of the teeth, and that many persons, through its agency—by its attacking and destroying the alveoli in its own peculiar, mysterious and unknown way, or by a secondary action through the system—lose their teeth, is too lamentably true; but it never causes decay of the teeth, or if it does, I have yet to see the first indication of it.

Dr. Westcott, in his experiments, found that teeth placed in a mixture of calomel and water of about the consistency of cream, and allowed to remain there for four months, came out as bright and as clean as when they were put in. And some years ago I placed one tooth, thoroughly cleansed from all foreign matter, into a phial with fifty grains of calomel mixed with about two or three fluid drachms of saliva, and at the end of six weeks no change was perceptible even by the aid of a powerful magnifying glass.

In judging of the effects likely to be produced on the teeth by the taking of medicines, any one who has read or may read the record of Dr. Westcott's experiments should bear in mind that it would require a great many and very large doses of medicine, and the patient to be a long time in swallowing each dose, to equal one of the baths to which he subjected the teeth on which he experimented. And this other fact should also be remembered. His teeth were in a somewhat different condition from those in the mouth of a patient. They had been removed from their natural connections, and thereby deprived of whatever resistance their little vitality might have possessed. They had also, probably, been carefully cleansed from all extraneous matters before subjecting them to the tests; while teeth in the mouth have a low degree of vitality, affording them some protection, and they are also almost always more or less protected by the fatty and albuminous matter, little though it may be, which is deposited from the saliva, and which is left upon them in the mastication of food, etc., from the immediate contact of acid thus rapidly passed over them. This protection though comparatively very small, in a single act of deglutition might be sufficient to afford them considerable if not ample protection.

(To be continued.)

A NEW METHOD OF MAKING DIES.

BY F. Y. CLARK.

As requested, we now send you a description, with flasks, etc., of the above process.*

To view comparatively the process for obtaining metallic dies, which we now offer the profession, we might speak at some length of the many objectionable features in connection with the various plans now in use; but, as we are addressing the experienced practitioner more than the student, we trust that these features are sufficiently familiar and understood to need no more than a mere allusion.

We believe there are very few, if any, who have not felt the want of a less tedious, more accurate, and simple process, while going through the disagreeable list of difficulties and manipulations, such as varnishing and oiling impressions, taking and trimming casts, varnishing again, and moulding in sand, using flasks and similar auxiliaries. If an irregular, prominent, or diverging alveolus is presented, a little skill and the yielding nature of the membrane will always enable us to secure a good impression; but, by our usual mode of procedure, a perfect metallic die of that impression is impossible. We may consume time, weary our heads and hands with flasks, pour the metal on our cast, or dip the cast in the metal, yet withal, as the principle is incorrect, the result must be the same.

We are confident that the most experienced portion of the profession will fully coincide with us in saying that what is wanted is *some simple method by which the metallic die can be taken directly from the impression*. Plaster comes nearer to what is wanted in this respect than anything else in use; but were we to pour metal into a plaster impression, we know that the moisture would destroy the die; and to attempt to drive off this moisture by heat, would prove equally fatal to the impression. To accomplish our end, then, we found it necessary to forsake the beaten path pursued for years, and start anew, to seek some material, or combination of materials, by which we could secure a perfect impression, and which would resist the amount of heat necessary for obtaining a metallic die.

During the last three or four years our experiments to this end have been numerous. After testing from time to time, with more or less success, one material after another, and finally securing a combination that met our most sanguine expectations, we then found it necessary to construct a cup and flask, or set of flasks, by which this could be conveniently and successfully used for the end in view. In doing the latter, we have had much trouble, and spent much more time and money than many would

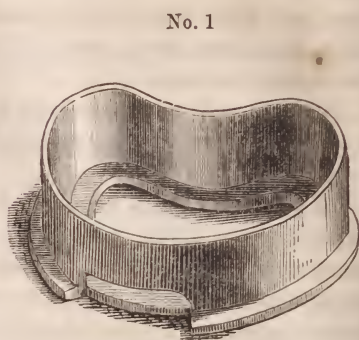
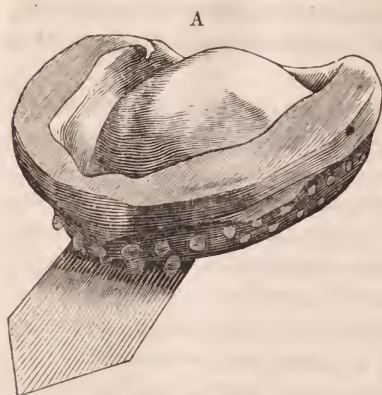
* This article, which was sent us for publication in October last, has been delayed until the present time by the failure of the author to return the proof-sheets sent him.

suppose. We have gone from sheet-iron, forced in shape by wooden forms, to copper struck up by iron dies, and then to various kinds of castings, until we arrived at that which we now offer, and which we believe, after being once fairly used, will never be thrown aside for any other method now in vogue.

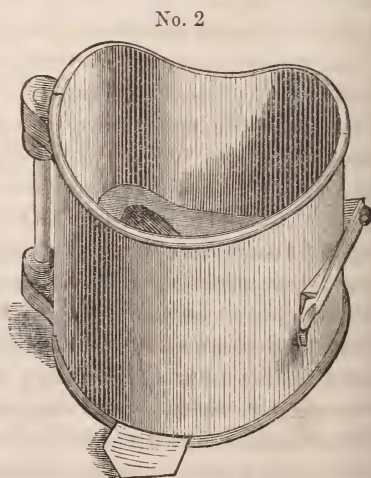
With these prefatory remarks, we submit the following process, which we hope will be found as successful in the hands of others as it has been in our own :—

To commence, it is necessary to have an impression-cup made from brass, German silver, copper, or any other metal that will stand the necessary amount of heat for obtaining a metallic die without change; we prefer one made from copper, because this metal is more malleable and easily cleaned after using, than any other that we have tried. It should differ in no other respect from the ones in general use, except in the perforation of holes all over its surface, about one-fourth of an inch apart, and one-eighth of an inch in circumference. These holes are very essential, for they not only prevent the material from leaving the cup in removing it from the mouth, but greatly facilitate the escape of moisture in drying or on receiving the metal for the die. With a cup as described, we use a batter composed of equal parts of clear, white spar, and the best calcined plaster of Paris. The manner of taking an impression with this batter is nearly the same as with plaster alone. It should be mixed somewhat thicker at first than plaster-batter used for the same purpose, and should be kept in constant motion with a spoon, or anything that will answer, until there are unmistakable signs of its setting, and then it should be emptied into the cup and conveyed to the mouth as quickly as possible. As we said before, the plaster used for this purpose should be of the very best quality and freshly calcined, for it will not do to add salt to it to quicken its hardening, as is customary in the use of plaster alone. In very difficult cases, where the gums have receded, thereby exposing the necks of the teeth, it is best to have more spar than plaster in the batter used, for then the giving will be more apt to take place at the very point of difficulty. In such cases we know it is out of the question to get a perfect impression with anything; but we are confident this will be found more practical than either wax or plaster, for it being harder than one and not as hard as the other, and somewhat brittle, is thereby more liable to give where it should—at the very point of trouble. We think a little experience is all that is necessary to convince any one that there are few cases, if any, where a better impression cannot be taken with this mixture than with either plaster or wax; for about the last two years we have used nothing else. The impresssion, when taken, and as represented in letter A, should next be placed in flask No. 1, as represented in the following cut. This flask is cast from gray iron, and has a large open space in the bottom, leaving only a rim on the inside large enough for

the impression-cup to rest on. This open space is for the escape of moisture coming from the holes in the cup, as before described. The



space between the impression and the flask should now be seamed up with batter a little thicker than that used for the impression; it should be spread with a knife or spatula, so as to prevent it running down much between the cup and the rim of the flask. It is not best to use much batter for this purpose, just enough to hold the cup in place and to give a smooth, continuous surface to the parts. When this is properly done it will present the appearance of the annexed representation, marked B. This flask and impression, thus prepared, is now ready for flask No. 2, which, when placed around the first, will present the following appearance. The whole should now be placed in an oven or on a stove, or



any place where it will dry; this can be done either rapidly or gradually; when we are in a hurry we generally have it dry by the time the metal is melted, but it may be better to give it more time. It is not my

wish to say anything here about metal; almost every dentist has some peculiar favorite of his own; of course it is immaterial what kind is used in this process. We generally construct our dies from zinc. Some time after the metal has been poured in the flask, a red-hot iron should be placed in its centre, and held there until it begins to set, then the iron should be withdrawn and more metal poured in. This is done to command the shrinkage, making it take place where it will do no harm; in other words, the metal should always be made to congeal last at the top of the flask; an iron, shaped like a tinner's soldering iron, is about the kind necessary for this purpose. When the die has become sufficiently cold it should next be removed from the impression, etc., and flask No. 2 placed around it as before, then inverted, and the counter-cast taken.

In conclusion, we would remark, that all improvements should be considered valuable, in proportion as they save time, money, and labor. The time and labor necessary for obtaining a die by this process will, on fair trial, be found about one-third of that consumed by the usual method, and the material, flasks, etc., will cost but a mere trifle—ten or twelve dollars. Here, then, as we economize time, money, and labor, we think we may be allowed to assert *that we have an improvement.*

SAVANNAH, GA.

OS ARTIFICIAL FILLINGS.

BY CHAS. H. ROBERTS, M.D.

THE *debut* of novelties, like the *debut* of players, is hailed with great gusto by the community or profession that is supposed to be benefited by them. The halo that surrounds them during their state of novelty gradually disappears, when they assume a reality. Man, as an imaginative being, loves to look upon all things as they appear, not as they really are—a bare part, a thing real, is but a skeleton; the vivid imagination throws in it and around it the viscera, blood-vessels, muscles, and vitality, and dresses it in a garb of beauty, and falls at its feet and unconsciously worships a thing of its own creation.

Now, just ten years past the middle of the nineteenth century, a new thing has dawned upon the dental profession. It rose, as a bright star, far in the north of Germany, swept rapidly southward over Prussia, southern Germany, and France, and, like the German emigrant, scorning England's shores, struck boldly across the broad Atlantic to America, the father of dentistry, where it received a hearty welcome, and has already become vastly improved, and is rapidly passing from its state of novelty to a thing real. It has won its way in nearly every dentist's office from the Atlantic to the Pacific; and I venture to say no one who has

tried the *material properly prepared*, with an unbiased mind, would be willing to do without it. About eight months have passed since its introduction in my office, during which time I have filled many teeth I refused to operate on several years previous, with the greatest satisfaction to the patient. I am, and have been daily, using it as a substitute for all coarse fillings. I have filled hundreds of badly decayed teeth in all conditions with it, and, to my surprise, not a single case of ulceration or periostitis has yet come to my knowledge.

As high as my opinion of it is for filling teeth, heretofore considered worthless, I do not use it as a substitute for gold, as I do not believe it has been sufficiently tested to warrant the responsibility. Gold has stood the test of time; it has sustained the reputation of every dentist who knew how to use it, and did not shrink from hard work. We have no reason to find fault with good gold-foil, properly used and thoroughly worked with elbow-grease; it is always unsafe to throw by the certainty for an uncertainty. Time alone can decide whether this new material is worthy of taking the place of gold. Every dentist knows it is laborious work to make good gold fillings, and every intelligent patient knows when the dentist is doing his duty, and it is no small portion of the compensation, to know patients not only pay ungrudgingly, but appreciate the services of a good dentist, and feel grateful for his services.

I am aware of the inclination of dentists to look with favor on these fillings so easily introduced in cavities, as it is human to shrink from *hard work*; but we should not forget it is manly to shrink from rash and unwarrantable responsibilities. Who would not dislike to have the ghost of a maltreated molar disturb his dreams? or see in vision the spirit-finger of its owner long and lean pointed at him? and hear the hoarse, hollow whisper say, "Thou art the cause?"

Dentistry at first view appears a trifling profession; but when we view it merely in a commercial light, and compare the molars and incisors it deals in or has the keeping of, to dollars and cents at the prices intelligent people set upon them, it approximates its true position, and shows us that dentists are wielding a responsibility beyond computation; and, in comparison, world-renowned bankers are dwarfed to pawnbrokers, and every dentist in full practice assumes the responsibility of the care of the wealth of the Rothschilds. It becomes us then in the treatment of the natural organs, to try new materials with caution, and use them first on trial as a substitute for inferior articles. I have no question of the value of this new filling for the purposes I have recommended it, but before I give it exclusively the place of gold, as some writers claim they are doing, it will be after it has stood the test of as many years as it now has months.

This new material makes its appearance under various names, all indicating a resemblance to bone or dentine. Although the principal ingredients are the same in all, each has its peculiarities. Some harden

so slowly that the saliva will wash it out before it begins to harden; some not being able to stand the action of the saliva, become softened and crumble out after it has hardened; some harden so quickly it is impossible to fill a tooth before it is unfit for use, becoming crumbly and unpackable. Some parties have shocked the common sense of the most stupid in the profession, by offering an article so acid as to require platinum instruments to fill with.

Acids are very injurious to the teeth, and no acidiferous materials can be used with impunity. Any fluid that blackens the cork of the phial or steel instruments while using it, should be discarded at once. The fluid properly prepared is colorless, and so nearly neutral that only the nice chemical tests can determine its character; it does not affect the cork or steel instruments the least, and when mixed with the powder, it commences to harden slowly, and is pliable as putty after it is hard enough to resist the action of the saliva, and can be worked without detriment as long as it is pliable enough to pack, which renders it as easily used as amalgam, which I now think of only to abominate.

POUGHKEEPSIE, N. Y.

PROCEEDINGS OF DENTAL SOCIETIES.

PENNSYLVANIA ASSOCIATION OF DENTAL SURGEONS.

REPORTED BY GEO. T. BARKER, D.D.S.

A STATED meeting of the Association was held on the evening of May 8th, 1860, at eight o'clock. Vice-President, Dr. Buckingham, in the Chair.

Present, Drs. Fitch, McQuillen, Peirce, McCurdy, Harris, Townsend, Roberts, and Barker.

The subject of discussion, being

"ANÆSTHETIC AGENTS,"

was opened by Dr. Harris, who remarked that he had nearly given up the use of anæsthetics, finding them needless in his practice, as patients submit to operations with as much willingness without them as they did when they were employed. He considered that much of their effects, or rather the freedom from pain ascribed to operations, was due to the impression made upon the mind of the patients, they being well assured that the operation would be a painless one.

An instance happened in his office recently. A boy refused to submit to the extraction of a tooth, unless he was allowed to inhale ether; the father, at last, becoming tired, handed the boy a bottle, assuring him it was ether. After smelling it a few times, he submitted to the operation, and stated that the extraction of the tooth gave him no pain; the

bottle was, however, filled with spirits of camphor, which, of course, had no effect upon the patient, the mind alone being impressed.

It is also common to hear patients state that even when they have inhaled these agents, they derived no benefit from them; and he remembered a case in which a lady quite offended a practitioner, by assuring him she felt as much pain as when her teeth were removed without ether.

Dr. Barker could not agree with Dr. Harris, in considering that a mental impression of the patient is the main cause of success in producing painless operations; indeed, is convinced that it is not so. It is no doubt true, that the condition of the mind has a great effect in bringing the patient properly under the influence of the anæsthetic agent; for instance, a patient who sits down with calmness and confidence, both in the agent employed and the operator, will usually (though not always) pass into a state of semi-unconsciousness sufficient for the extraction of teeth, with pleasant thoughts, and little if any exciting influence upon the system, also passing readily from the anæsthetic state without any depressing effects; while those who sit down excited, frightened, and nervous, with but a faint belief that they will ever be brought from under the influence of the anæsthetic, exhibit the opposite, and it is often difficult to produce any effect upon them but excessive excitement and violent muscular contractions. He therefore makes it a rule to impart as much as possible to every patient, the same degree of confidence in the agent employed that he feels himself, and in this way has found no difficulty in inducing anæsthesia pleasantly in those of highly nervous and excitable temperaments.

In the use of anæsthetic agents, he has no hesitancy in preferring to all others pure sulphuric ether, as it has stood a long test in general and dental surgery; and a careful inquiry would prove that as yet no fatal results have been produced with this agent. It is true many reports of fatal results have been published in the press of this country, but inquiry would prove that the statements are unreliable.

Much of the bad effects ascribed to ether after its exhibition are due, he believed, to the quality of the agent employed, which, if obtained of the druggist and used without being washed, could not but prove deleterious, often leaving the patient with severe headache for days.

The United States Dispensatory describes the impurities in sulphuric ether, as acids, fixed substances, alcohol, water, and heavy oil of wine; also giving the tests and way in which they may be removed. He is therefore in the habit of exhibiting only a pure article of concentrated sulphuric ether, which he obtains of the manufacturers, Messrs. Powers and Weightman.

Many singular phenomena are observable in the exhibition of anæsthetic agents, and perhaps none more so than the effect upon the organ of hearing; in the different stages of etherization it is not uncommon to hear patients describe the grating noise of the forceps upon a tooth to be like

the bursting of a percussion cap, and that, while insensible to pain, can distinctly recognize each object around them, and also know what is being done.

For such operations as we are called upon to perform he does not think it necessary to produce unconsciousness, and is therefore in the habit of having the patients extend the arm, and when they are unable to keep it elevated, commences his operations, always, however, guided by the pulse and appearance of the eye of the patient.

Dr. McQuillen remarked that, as the gentlemen present were well aware, he does not employ anæsthetic agents in his practice. He had, however, when a student of medicine, seen ether extensively employed in the surgical operations performed in the clinics of the Jefferson College and the Pennsylvania Hospital, and also frequently witnessed its administration at the hands of fellow-practitioners, preparatory to the extraction of teeth. The experience thus gained had not only made him perfectly familiar with the phenomena attendant upon the anæsthetic state, but convinced him that, like all other remedial agencies, there are cases in which, either owing to temperament, idiosyncrasy, or the existence of certain diseases, the exhibition of *ether* is contra-indicated; particularly when the operation to be performed is the mere removal of one or more teeth. With some persons the inhalation of ether is accompanied by a high state of nervous excitement, analogous to that caused by the use of nitrous oxide, and the effort to induce the anæsthetic state proves unavailing. As a case in point, an attempt was made, a few years since, to etherize him, (preparatory to an operation upon an inverted toe-nail.) A quart of ether and an hour of time was consumed without producing the desired result. The unpleasant effects induced, however, at the time, and which continued for several days, were of such a nature, that he never could consent to inhale it again. The want of success in this instance could neither be attributed to inexperience on the part of the operator, or a defective quality of the article employed; as the operator had used the agent extensively for years, and the ether was unquestionably pure. Such facts indicate that the agent should be used with discrimination, and not be employed, as some have suggested, in every condition of the human organism. With regard to the relative merits of ether and chloroform, it is strange to observe the difference of opinion that prevails on this subject. In America, chloroform is regarded with so much apprehension by the medical and dental professions, that its use has been almost, if not entirely, abandoned; while on the continent of Europe, and in Great Britain in particular, it is employed to the exclusion of sulp. ether. In this country many fatal cases have been reported accompanying its administration, and occasionally well authenticated cases are also reported as occurring under the hands of experienced and judicious operators in England; but Professor Simpson, of Scotland, who enjoys the credit of

first introducing the agent, asserts that in an extensive experience with it, he has had no untoward results. What is this disparity due to—carelessness on the part of operators, or a difference, as has been suggested by Prof. S., in the quality of the article employed?

The physiological considerations connected with anæstheia are deserving of the most careful investigation; for, notwithstanding the experience that has been gained, we need additional light to enable us to say that the *modus operandi* of anæsthetics is perfectly understood, and this can only be obtained by a number of observers continuing and extending the experiments and vivisections that have already been made for this purpose upon the lower animals, and combining the results thus obtained with the phenomena manifested and sensations experienced by intelligent human beings. Can it be said positively as yet, which of the theories that have been advanced in explanation of this phenomena is correct? Is etherization due to the fact, that as the ether passes at once from the lungs to the left side of the heart, and from thence to the great nervous centre, the brain, and having reached that point, the first effect induced is excessive stimulation, followed by consequent sedation? Or, does it, in entering the general circulation, make the first *marked* impression upon the peripheral extremities of the sensory nerves, and through these affect the sensorium? Or, lastly, can it be attributed to deoxydation of the blood; the venous blood entering the lungs failing to obtain the due supply of that vivifying element oxygen, and passing on into the arterial system to be thrown unchanged upon the nervous mass? He had noticed this deoxydized condition of the arterial blood in a recent vivisection by Dr. Woodward upon a dog that was etherized. The blood flowing from an artery presented the dark characteristic color of venous blood; some of this was caught in a vessel, laid aside, and compared with a portion drawn from the same artery a short time after, when the effect of the ether to a certain extent had passed off: the last presented the bright scarlet hue of arterial blood. He is satisfied, however, that in this instance, the dark color of the blood when first drawn from the artery was due, not so much to the employment of the ether, as to the manner in which it was given. The sponge saturated with ether being placed in a gum-elastic bag, the latter was then forced over the head of the animal, and retained there until insensibility was induced, cutting off during that time every chance of obtaining the least supply of atmospheric air. It was used in this way on the score of economy. In the employment of ether for the alleviation of suffering humanity, too much stress cannot be laid upon the necessity of a due supply of atmospheric air, as fatal results, if they occur, are more likely to be owing to this than any other cause.

Dr. Fitch remarked, that ether and chloroform have been used quite extensively in the dental profession, and in the majority of instances the results are favorable, in some injurious, while in a few they have been fatal.

The attention of those exhibiting anæsthetic agents in dental practice has been more directed to external manifestations indicating a stage of anæsthesia necessary to a painless operation, than to any immediate physiological results. Perhaps, indeed, it would be quite difficult to explore this field with any degree of certainty, considering the character of the agents employed. He used Morton's Letheon some twelve years ago, at the time it was introduced to the profession, and since that period has employed ether and chloroform in his practice very generally, given them in surgical operations, and has yet to record a single instance of immediate or remote unhappy consequences.

Has witnessed in a few cases temporary apnœa, and found some few persons that could be but slightly affected, other than being rendered noisy, excited, and confused; and has observed many peculiar mental and physical phenomena, their character depending much upon the temperament and development of the individual patient. Has remarked that hearing, up to a certain point, is rendered more acute; and that unconsciousness is not always an attendant circumstance, as anæsthesia may be induced where the patient is entirely conscious; but they are generally unconscious, or partially so.

He depends much upon the condition or appearance of the eye as indicating the degree of anæsthesia, this organ, as a general thing, assuming a meaningless or death-like expression; the pupil is slightly enlarged; the ball is rolled upward and fixed in its socket; and observed that whenever these symptoms are present, the operation is attended with little if any pain.

Chloroform is much more rapid in its results than ether, being stronger, therefore is more dangerous, and should be exhibited with greater care, especially by inexperienced persons. He thought that serious consequences might arise by crowding it upon the lungs too rapidly, to the exclusion of all atmospheric air. By strenuously observing this last suggestion, other things being favorable, viz., a proper condition induced by fasting, etc., no fatal results need be apprehended, even where there is danger of determination of blood to the brain, as in a full habit. As no two stimuli act at the same time upon the organism, he could see no great benefit arising from an exhibition of chloric ether, although he had himself employed it quite often, yet could not understand why it should be more favorable than either separate. Where ether failed from any peculiar idiosyncrasy, chloroform would readily subserve the purpose, from the fact of its being much more powerful and speedy in its results. In one instance, had known where chloroform was given in a case of *mania a potu*, producing death almost instantly; yet, has frequently given a stimulus just before administering the anæsthetic, and has employed it while persons were partially intoxicated, without injury.

He does not urge persons to take either chloroform or ether, but has no

hesitancy in administering them whenever desired, constitutional conditions being favorable. He would not use them in cases of bronchitis, phthisis pulmonalis, or organic affections of the heart.

Has been quite successful in the use of congelation as an anæsthetic, and can render it effectual in ninety cases out of every hundred, yet this process is attended with much annoyance to the operator.

Several interesting questions have been advanced in reference to the effects produced by these agencies upon the vital organs. Is anæsthesia produced by the deoxydization of the blood, the nervous system being thus affected through the circulation, or are the impressions exerted primarily upon the extremities of the nerve fibres, and then conducted through the spinal column to the brain? Again, is the involuntary system of nerves liable to be involved in anæsthetic results, and if so, to what extent? These are points worthy of consideration and prolonged investigation.

Dr. Buckingham remarked, that six years ago, when the subject was under discussion in this Society, a majority of the members then present advocated the use of it in extracting teeth; and some went so far as to say it might be given to patients at any time and under all circumstances, and that they could not conceive of a person being in a condition when it would not be perfectly safe to administer it.

He would ask the members whether it could be used with perfect safety? Whether they knew of any cases where it had produced injurious effects, and how such effects could be counteracted? No person should use an article as powerful as ether, without having at hand all the restoratives necessary in cases of emergency; for when it produces unpleasant effects, it does not give the operator time to refer to what has been done by others, but he must know himself what should be done at once, or the case would soon be beyond recovery.

We all know ether will render persons insensible to pain, and, in a majority of cases, the effects soon pass off; but there are some cases where the patient does not recover immediately. Do these unpleasant cases only occur when the ether has been improperly administered; or are they to be attributed to the impurity of the ether; or is it some peculiar condition of the patient? These are questions which he would like to have answered.

Dr. Harris had been disappointed with the effects of anæsthetic agents upon patients at different times, some being etherized at one time with little difficulty, and at another perfectly unmanageable; he considered this due to the condition of the system, upon the same principle that a narcotic will act at one time, and at another will produce no effect. He had used anæsthetics occasionally with success; but never exhibited them without dread; indeed, would, under no consideration, take them himself, unless he had first made his will.

He remembered an instance where he exhibited an anæsthetic to a nervous and excited young lady and extracted a tooth, the operation being a painless one and quite satisfactory; upon another occasion she called and was again placed in the anæsthetic state; she soon began to show symptoms of asphyxia, and he could not recollect ever to have seen a person so near death; she, however, recovered. He considered that the excitement which she was under upon the first occasion counteracted the narcotic effects of the agent, which on the last occasion was not present, for she was willing and anxious to inhale the anæsthetic.

As it is, therefore, impossible to tell what would be their action upon the system, he considered it advisable to exhibit them as little as possible. Another objection to their use is, that patients come at unseasonable periods, when he is otherwise engaged, and he thus has had hours taken up in administering an anæsthetic without compensation.

Dr. Barker considered that the theory of the arrest of oxydation in the tissues—the process which is ever persistent during life, and by which animal heat is generated, and on the continuance of which sensation, volition, and all the organic functions depended—seemed to be the most plausible, as these agents, being received into the lungs by respiration, are absorbed into the blood and borne through the system, arresting the process of oxydation and the functions of volition and sensation. This may account for the peculiar sensations in the extremities and most distant capillaries, which is usually one of the first effects in etherization.

He could not agree with gentlemen who preceded him, in saying that they would not advise their patients to inhale any anæsthetic; but considered there were many cases where he would recommend them, particularly when called to extract teeth for invalids, or those partially convalescent, considering the effects of the anæsthetic less dangerous than the shock to the system from the pain and excitement—always, however, being governed by the condition and disease of the patient.

Dr. Townsend employs anæsthetics, though not as much as formerly, and is discouraging as much as possible his patients from using them, thinking that, for the operations we are called upon to perform, they are unnecessary. He considered chloroform to be a dangerous agent, though the sensations are usually more pleasant than with ether.

Dr. Spencer Roberts has used ether quite extensively in practice, and found some patients that could not be etherized, as they appear to resist the action of the anæsthetic. A singular case happened in his office a short time since. A lady called at 10 o'clock in the morning to have several teeth and roots extracted. Having fully etherized her, he extracted six or eight teeth, and then, finding the effect had nearly passed off, allowed her to inhale more of the ether, and, having again produced unconsciousness, extracted the remaining teeth; but after waiting a few moments was

surprised to see that she still remained insensible; both respiration and circulation were perfectly good, and he did not feel the least alarmed, well knowing that so long as they remained normal no danger need be apprehended. To please the sister of the patient, who was present, he sent for a medical practitioner, first having placed her in a recumbent position. The doctor was, unfortunately, one of the very old school, unused to the effects of anæsthetic agents, and at once pronounced the case most desperate, ordering mustard and warm water to the feet and wrists, greatly alarming the lady who was present; fortunately, however, another practitioner came in, who ordered the mustard to be discontinued, and allowed the patient to quietly sleep off the effects of the anæsthetic. After four hours she became sensible, stating that she had known everything that had been said and done, but was unable to move or speak.

Dr. McQuillen said, when taking into consideration the irresponsible character of many who use anæsthetic agents in the most reckless manner, their utter ignorance of physiological laws, of the medical properties of the article employed, and their inability to diagnose the existence of diseases in which it is contra-indicated, it is strange that we have not had a greater number of fatal accidents accompanying their administration. No rational medical practitioner would countenance for one moment the exhibition of such powerful agents in affections where life hangs as by a thread, as for instance in organic affections of the heart, in paralysis, or in marked predispositions to apoplexy; and it is the height of temerity for the dentist to employ them under such circumstances. We find by the newspapers, the medical and dental journals, that fatal results have attended the administration of chloroform, if not of ether. In all of these cases, were those engaged in the exhibition of the agent equal to the emergency? Did they employ all the remedial agencies, while there was still life and hope, that have been suggested for the resuscitation of persons in a state of apnœa?

As Bichat truly said, life rests upon a tripod, formed by innervation, respiration, and circulation, mutually dependent on each other, life ceases upon the complete arrestation of either function. Innervation and respiration may be *suspended* for a time, and again be resumed; but the great circulatory centre, the heart, once ceasing to act, it never resumes its function. In many of the fatal cases that have occurred in the inhalation of chloroform, the patients at first were, without doubt, merely in a comatosed condition; in this state, the circulation is eventually arrested, because the acts of inspiration and expiration cease, and the failure of these is due to a suspension of nervous power; under such circumstances, if *artificial respiration* is kept up until the *coma* has passed off, all the danger to life which depended on that condition may be escaped. To maintain this artificial respiration, various plans have been proposed. The lungs have been inflated with air by passing the nozzle of a pair of

bellows into the larynx; mouth to mouth inflation has been practiced; and Dr. Marshall Hall, several years since, presented to the world his postural method. First placing the patient on the face and pressing the chest with the hands, then turning him on the side, and repeating this fifteen or twenty times a minute.

The most *simple* and philosophical plan yet suggested has only been made within the last two years, by Dr. Silvester, an English physician. His treatment, which is in accordance with established physiological principles, and is a simple imitation of natural deep respiration, is as follows: The patient is placed on his back, the shoulders being slightly raised by placing something under them; the tongue is then drawn forward and kept projecting beyond the lips by an assistant, or, in the absence of another person, by closing the lower jaw and passing a handkerchief under the chin and fastening it over the head; in this way the tongue is prevented from falling back into the throat, the larynx is raised, and nothing intervenes to prevent the air from passing through the nares, either to or from the lungs. The patient's arms are then extended upward and forward for a few seconds; by this action the capacity of the chest is enlarged by the pectoral and other muscles which pass between the chest and shoulders, elevating the ribs and sternum, a vacuum is formed, and the air rushes in, as in natural *inspiration*; the arms are then carried down and pressed gently and firmly against the sides of the chest, the cavity of the thorax is diminished by this action and forcible *expiration* is produced. These actions are to be repeated alternately fifteen times in a minute, until natural respiration is established or all hopes of resuscitation is past.

In reply to a question of Dr. Harris's, Dr. McQuillen said, his principal reason for not using ether is, that it contaminates the atmosphere of the operating room to an extent which makes it disagreeable alike to patients and himself; and as several of his friends, in whose judgment and discretion he has every confidence, are in the habit of administering it, and like to do so, he sends patients desiring to be etherized to them.

He further remarked, there is one consideration that has not been referred to during the evening, the administration of ether to females. On this point he thought that those who are in the habit of using it, cannot be too particular in insisting upon the presence of a third party, a relative or friend of the patient if possible, during the operation.

Dr. Buckingham read several paragraphs from a lecture of Dr. Richardson's, published in the *London Dental Review*, to show that there are cases where it would be improper to administer chloroform, and as the surgeons in England consider chloroform as safe an agent to use as ether, he supposed in similar cases ether should not be used.

Dr. Richardson pointed out six conditions where it would be dangerous to use chloroform: "1. Cases of tubercle of the lung. 2. Cases where

there is irregularity of the heart from feebleness of the contractile muscular wall. 3. Cases where the heart is very feeble and the patient is loaded with fat. 4. Cases where there is intense anæmia or bloodlessness. 5. Cases where there is distinct diseases of the kidney, attended with secretion of albumen. 6. Cases where there is marked evidences of softening of the brain."

He also read, from the same lecture, another paragraph, on the mode in which anæsthetics produce these effects: "Dr. Snow has proved that all the volatile narcotics have one principle in common: they arrest oxydation, and in such way stop the combustion of combustible bodies." And although Dr. Headley, in his work on the actions of medicines, does not agree with this theory, yet they both admit that it is through their action on the blood that the effects are produced.

After a lengthy and interesting discussion, the subject of "Osteoplastic and its Adaptation for Fillings" was introduced. On motion of Dr. Harris, a committee of six were appointed to examine and test the material, and report at a future meeting. The following gentlemen were appointed on the committee: Drs. Harris, McQuillen, Townsend, Buckingham, Barker, and Peirce.

The "Treatment of the Dental Pulp" was adopted as the next subject for discussion.

KENTUCKY STATE DENTAL ASSOCIATION.

THE following members of the dental profession of Kentucky, in response to a memorial, assembled in convention at Lexington, Tuesday, April 24, 1860, and organized a State Association: Drs. A. S. Talbert, Lexington; W. W. Justice, Winchester; Stoddard Driggs, Lexington; Edm. J. Peckover, Nicholasville; W. Muir Rogers, Shelbyville; W. N. Moffett, Lexington; J. J. Wilson, Lexington; R. Peckover, Paris; John Holmes, Georgetown; W. D. Stone, Lexington; James W. Grant, Lancaster; J. A. McClelland, Louisville.

On motion, Dr. J. A. McClelland was called to the Chair, and Dr. W. Muir Rogers was appointed Secretary.

Drs. A. S. Talbert, R. Peckover, and S. F. Davies were then appointed a Committee on Constitution. They prepared and presented one, which was adopted.

An election for officers of the Association during the ensuing year resulted as follows: Dr. W. D. Stone, of Lexington, President; Dr. Richard Peckover, of Paris, Vice-President; Dr. W. Muir Rogers, of Shelbyville, Secretary, and Dr. J. A. McClelland, of Louisville, Treasurer.

Committee on Examinations.—Drs. Stoddard Driggs, W. A. Talbert, and W. W. Justice.

Executive Committee.—Drs. J. W. Grant, E. J. Peckover, and W. Muir Rogers.

Delegates to the National Dental Convention, Washington, D. C.—Drs. A. S. Talbert, J. A. McClelland, and W. Muir Rogers.

The Executive Committee reported the following topics for discussion:—Filling Teeth, Fang Filling, Treatment of Alveolar Abscess, Plate Work, Vulcanite and Hard Rubber Base, Partial Lower Plates, Miscellaneous Discussion.

These subjects were ably and eloquently discussed, to the improvement and satisfaction of every one present.

A vote of thanks was tendered to Dr. R. Peckover, of Paris, for a valuable improvement in material for impressions.

After being in session two days the Association, on motion, adjourned to meet in the City of Louisville, the second Tuesday of April, 1861.

On the evening of Wednesday the delegates partook of the hospitalities of Dr. Stone, at his residence in Lexington, and separated, at an early hour, well pleased with the harmonious proceedings of the Association.

W. MUIR ROGERS, *Secretary*.

NORTHERN OHIO DENTAL ASSOCIATION.

THE first annual meeting of this Association was held in Cleveland on Tuesday, May 1st, 1860.

President, B. Strickland, in the Chair. Meeting called to order at 7½ o'clock P.M. On motion, the constitution and by-laws were read by the Secretary. There being but few members present, the meeting adjourned to meet at 10 o'clock A.M., the next day.

Wednesday—MORNING SESSION. Called to order by the President at 10½ o'clock. Present, Drs. B. Strickland, W. H. Atkinson, B. T. Spelman, F. S. Slosson, C. Palmer, W. P. Horton, J. F. Siddell, B. F. Robinson, and C. R. Butler.

The following applicants were elected members of the Association: Drs. J. C. Whinery, Salem; A. E. Lyman, Newton Falls; G. Langsdorff, Cleveland; A. Barrett, Ashtabula; and — Sawyer, Youngstown.

A committee of three, appointed for the purpose, presented the following order of business:—

- I. *Mechanical Dentistry.*—Preparation of cases. Mode of working.
- II. *Operative Dentistry.*—Examination and diagnosis of cases. Manner of performing specific operations.
- III. *Miscellaneous Matters.*

The members entered into the discussion of the first question with considerable interest, and the general opinion advanced was that for the ultimate success of permanent artificial dentures, it was *best* to insert

temporary sets immediately, or a *few* days after the extraction of the teeth.

Dr. Palmer presented several models, showing how the contour of the face and mouth could be easily obtained.

Dr. Spelman made some very interesting remarks in reference to the manufacture of teeth, and thought the members would find great convenience in fitting difficult cases by manufacturing their own teeth.

Adjourned to 2 o'clock P.M.

AFTERNOON SESSION.

On motion, the regular order of business was suspended, for the purpose of electing representatives to the National Dental Convention, which meets in Washington, D. C., Tuesday, July 31st, 1860.

The ballot resulted in the election of Drs. W. H. Atkinson, B. Strickland, and C. R. Butler, of Cleveland. On motion, three alternates were also elected, Drs. F. S. Slosson, Cleveland, J. C. Whinery, Salem, and A. E. Lyman, Newton Falls.

The second question—Operative Dentistry—was then taken up, and after some general remarks on examination, etc., several members described minutely their mode of operating in specific cases, such as approximal cavities in incisors of young persons or children, and in bicuspids and molars.

Under the miscellaneous head, on motion, the following gentlemen were appointed to prepare essays for the next meeting:—

Dr. A. E. Lyman, Association, or Dental Ethics; Dr. C. Palmer, a Practical Essay on Refining Gold and getting out Plate for Dental Purposes; Dr. F. S. Slosson, subject not named.

The Association adjourned to meet the first Tuesday in May, 1861.

C. R. BUTLER, *Secretary*.

EDITORIAL.

TAFT'S OPERATIVE DENTISTRY.

THIS is "A Practical Treatise on Operative Dentistry, by J. Taft, Professor of Operative Dentistry in the Ohio College of Dental Surgery, Cincinnati." We promised, in the last issue of the DENTAL COSMOS, to refer to the above work for a correction of some of our errors and wrong teachings which, it has been gravely asserted, are calculated to lead the young members of the profession into error, and we are gratified to believe that we shall be successful, because we observe in the outset, according to the author, that the work contains "*all* that is known" in operative dentistry. We could not have believed that the author knew so much if he

had not said so himself. The author also asserts that the "work has aimed to furnish, in as compact a form as possible, the principles of the science." We suppose he means of dentistry. We must say here that we never felt disposed to review any works or journal articles on dentistry, because we believed that all the branches of our noble art were undergoing rapid changes, and that all writers on the different subjects relating to it were more or less defective as well as ourselves, recollecting that those who live in glass houses should not throw stones. There are articles appearing in every journal that we believe we could find fault with, even though our fault-finding might be error, but we are anxious that all who are engaged in the study and practice of our profession should enjoy every opportunity to express what he knows or believes to be right, and every honest student will select the good, add to it what he knows, to improve himself, and let what he believes to be error fall. There are many articles that contain but one grain of wheat to the bushel of chaff. We have said elsewhere that we did not care how other operators did their work, if they did it well. There are many good and different ways of doing many things, consequently we do not expect to complain of those who differ from us, unless it comes up in an unavoidable manner. We have on many occasions been solicited to write a work for the profession, but declined, for the reason that there were too many points that were still under consideration in our mind, investigation in practice and in science, that should appear in a standard work about which we were not fully satisfied, but gave from time to time our views and practices as fast as circumstances would allow, that others might be helped, and in turn help us to push forward our art in its various branches to its fullest development. We are led to these remarks as an apology for what we have written, not to defend our errors.

For the publishers of this work, we must say that it is gotten up in a most excellent manner. But with regard to "scientific and literary character" it has been referred to by an able reviewer in the *North American Medico-Chirurgical Review* of May, 1860. It shall be more with the *teachings and practice* that we shall have to treat. In chapter I., these sentences occur: "Only those affections which pertain to the teeth directly, and which, for the most part, are confined to the tooth substance itself, will here require attention. Nor will the pathology of contiguous parts be introduced; for the appropriate treatment of these, being mainly therapeutic rather than surgical, would involve a discussion of questions not within the scope of the present volume." How does this compare with the sentence in the preface, that it contains "all that is known in this branch of the science." We suppose he means operative dentistry. Now this is "wrong teaching" to the young as well as to the old student, and one of the most mischievous errors in the way of the accomplished operative dentist that can be advanced. This is the place where the

mechanical operative dentist and the *therapeutic* and *pathological* dentist divides. How many dentists are in the habit of treating the "tooth substance itself" as though it were as independent of the physical economy as the instruments used in operating! The tooth substance is in a pathological condition as soon as it is attacked by decay, and calls for treatment according to the variously modified temperaments of the patients in which it occurs. The whole principle is embodied in the following sentence contained in the able article in the *Medico-Chirurgical Review*, referred to above: "Men possessing a sound medical education are wanted in the dental ranks; without a fair acquaintance with anatomy, physiology, materia medica, dentistry, surgery, and therapeutics, *no man can be an accomplished dentist.*" We are aware that the dental colleges are doing much to improve the condition of those who have not, or cannot have the advantages of a thorough medical education, and it should be the constant aim of the teachers in those schools to be careful not to separate too much the strong hold which those kindred arts have upon each other.

Under the heading of introduction, the subject of tartar and its formation is introduced. Its color, manner of formation and varieties are very clearly set forth; but with regard to its origin it is not so clear. Persons who have a free flow of saliva do not, according to our experience, deposit the greatest amount of tartar; it depends on the amount of calcareous matter that the saliva contains.

With reference to the "*points of deposit*," there must have been a slip of the pen. The author tells us that "it is found collected upon the superior molars, just in the vicinity of the ducts of Wharton."(!)

Now, according to our instruction in anatomy, the ducts of Wharton are the ducts which lead from the submaxillary glands and open by small orifices under the tip of the tongue alongside of the frænum. The excretory ducts of the parotid glands open into the mouth opposite the second superior molar teeth, and are called the ducts of *Steno*. The instruments used for removing tartar are exceedingly clumsy; we have dropped them long ago as inefficient. With the "*treatment*" of the enamel after removing tartar, we must find fault. The author here abandons the therapeutic for the mechanical treatment, and says, with reference to removing green stain, "when the erosion is but slight, it will be effected with pulverized pumice or Arkansas stone, applied with water till it disappears, and with the subsequent use of the burnisher with a solution of soap." If the author means here the steel burnisher, as we know some are in the habit of using, we object to it *in toto*. Nothing harder should be applied to the enamel after it is scraped than a soft stick of wood or cloth to carry the pumice. This treatment is intended to remove the broken crystals of the enamel which the scraper has made, and to get into the undulations of the enamel which cannot be reached by the instrument; this leaves the enamel with a pure and clear surface, which can be brushed

or wiped clean from future deposits; while if the enamel be burnished with a steel instrument, it will crush the crystalline surface of that substance and leave it in a condition for the action of the acids of the mouth. The burnisher is used on metals to break down the projecting crystals, and the effect is the same on enamel. Polishing and burnishing are two things, and the latter should never be applied to the teeth. J. D. W.

(To be continued.)

EXPRESSING OPINION.

"*The American Dental Review*," published at St. Louis, Mo., contains an article over the initials "A. B.," calling us to account for not having a *care* for the "justly attained reputation of the City of Brotherly Love." We should not have noticed the article of "A. B.," had it not misrepresented us by merely quoting a fragment of a sentence. The whole sentence runs thus: "We would say here, that we do not care what method a dentist may adopt to plug a tooth, whether he uses the gold in pellets, strips, ropes, ribbons, cylinders, or in bunches, if he succeeds in making a good filling." Doubtless any one can see that we do not use the word *care* in the sense that it has been "rapped out" in italics by "A. B."

We have always endeavored to observe a spirit of liberality toward those who differ from us in opinion and practice; if we have failed, it can be set right without the unkindness of illiberal quotations. We are not as fond of italics as some writers are. We will be willing to inform the "distant brethren" about plugging teeth when that subject is treated of at proper time. The inference, by "A. B.," that we "*intimate* that there has been no improvement by way of simplifying and facilitating the operation of filling a tooth," does not seem to be so *brotherly*, in the face of the following sentence in our article: "But since the properties of gold have become better understood, doubtless, in some respects, many operations are made with it that could not formerly have been done so well."

Now a word for the *Quaker*. We have a great respect for this far-famed class of society of the "City of Brotherly Love," and we must say, that their style of language, and the "delicacy of feeling," is very different from that of our Western "friend"—it betrays too much of the *hickory* to our ear.

J. D. W.

NATIONAL DENTAL CONVENTION.

By reference to the proceedings of societies, presented from time to time during the past few months, it will be found that a number of the State and local dental societies have already elected delegates to the Dental Convention, which meets in Washington, D. C., Tuesday, July 31, 1860, for the purpose of *adopting* a constitution and *establishing* a National Association upon a representative basis. In addition to these societies, there is not the least question but what the remaining portion, with possibly one exception, will send representatives to the Convention.

There are at present, in different parts of the country, fifteen State and local dental associations, viz.: In Pennsylvania, 2; Ohio, 3; Virginia, 1; Missouri, 1; Michigan, 1; Indiana, 1; North Carolina, 1; Georgia, 1; New York, 1; Kentucky, 1; and two, the "Mississippi Valley" and "Western," which meet in different cities of the Western States.

It remains to be seen whether the profession in the other States of the Union will take advantage of the period that still remains (two months) to organize societies, and send delegates to unite with the representatives from existing organizations in establishing the proposed association; or be content to remain, as doubters and tide-waiters, in a state of glorious and masterly inactivity, leaving the work to be accomplished by a few warm-hearted, enthusiastic, and determined members of the profession, who, having the best interests of the profession at heart, recognize no such word as fail.

At the meeting of the Convention at Niagara, a constitution for the proposed association was presented, and the final adoption left to the forthcoming session at Washington. By the publication of the proposed plan of organization, the profession have become acquainted with the provisions contained therein; but here let it be distinctly understood, that this plan was not presented as an ultimatum, to be adopted without question, for each and all of its provisions are open to the closest scrutiny, to be altered or amended, and if deemed necessary, the entire instrument to be thrown aside, to give place to one that may meet more fully the exigencies of the movement.

If, for instance, the clause for the election of *members by invitation* is open to reasonable objections, it should by all means be thrown aside, and the movement allowed to rest upon the basis of representative and permanent memberships alone, for the association should be guarded alike from the laxity of an organization without a constitution, by-laws, or qualifications for membership, and the mutual-admiration principle of a mere clique.

To insure a continuity of *usefulness* and *success* to such an organization, and enable it to command not only the respect of the dental profession, but the votaries of other sciences, it should not depend merely

upon talents and energies already recognized and appreciated; but, to impart life and vitality to it, must have added to its ranks year after year the young and growing intellect of the profession. Above all, it should promote and foster the establishment of local societies in every section of the country; for it is to these it must look for the future addition of members, who, through the intimate association with their fellow-practitioners, induced by the existence of such organizations, have been not only stimulated to study and investigate the science, and practice the art with increased benefit to their patients, but have gained by long-continued experience the facility of communicating to others orally their views in a clear and comprehensive manner.

Lastly, the portals of an association upon the proposed basis should be open alike to delegates from societies in foreign countries as well as those upon our own soil.

J. H. M'Q.

REVIEW OF DENTAL LITERATURE AND ART.

BY J. H. M'QUILLEN, D.D.S.

MEDICAL HISTORY AND TREATMENT OF DISEASES OF THE TEETH AND THE ADJACENT STRUCTURES. By BENJAMIN WARD RICHARDSON, M.A., M.D. London: H. Baillière, 1860, pp. 274.

THIS work comprises the entire course of lectures delivered before the College of Dentists of England, by Dr. Richardson, and published originally in the *London Dental Review*. As the readers of the DENTAL COSMOS have had an opportunity of forming an opinion of the *quality* and *value* of these lectures from the extracts presented to their notice during the past year; and as we have expressed on former occasions, in the strongest terms possible, the very favorable impression that the high literary, scientific, and practical character of these lectures had made upon us, it does not seem necessary to give an extended review of the contents of this truly valuable work. We cannot but feel assured, however, that many, if not all who have read those extracts, must have coincided with us, in the wish expressed in a late number of the magazine, that the entire course would be published in book form, and that they will be pleased to find an opportunity afforded at such an early period to possess it. The work is not only a valuable addition to the literature of our profession, but may be consulted with advantage by medical practitioners. The following synopsis will give a general idea of the contents, and the order in which the subjects are presented, viz:—

“Constitutional and General Causes of some Diseases of the Teeth and the Adjacent Structures—Hæmorrhagic Diathesis in its Bearings on Dental Practice—Neuralgia in Relation to Toothache and Diseases of the Teeth—Hysteria and Allied Conditions in Relation to some Forms of Dental Affection—Dyspepsia, Rheumatism, and Gout, in their Rela-

tion to some Abnormal States of the Teeth and Neighboring Organs—Diseases of Infancy and Childhood, as Dependent on and as Influencing Dentition—Purulent Affections of the Gums and Adjacent Structures—Malignant Diseases Involving the Organs of Mastication—Diseases of the Teeth and Maxillary Bones, arising from the Effects of Mercury, Phosphorus, Lead, and other Poisons—Diet and Modes of Life in their Influence on the Organs of Mastication—Chloroform and the Narcotic Remedial Series—Pathological and General History of Necrosis, Exostosis, and Caries.”

The accompanying extract from the work is highly interesting and instructive on account of the *fact* established by it, that odontalgia is sometimes due to an attack of gout, and that the pain may be referred to teeth perfectly free from dental caries:—

“The relationships which exist between gout and toothache, and gout and neuralgia, are all-important. These relationships are insidious, and have been but recently recognized. Yet they form the most common connections in the links of diatheses and local disorder.

“Up to the present time, in speaking of gout and thinking of gout, we have been too much inclined to associate the disease with one unfortunate organ, the great toe. True it is that this member is often the seat of the disease, and true that in extreme cases the toe is more severely affected than most other parts. But in case after case, the medical man who is on the look out, finds that long before this extreme indication of the pre-existent diathesis occurs, the story is out in the tale of some slighter and less definite ache.

“A man in the first period of the middle age, accustomed to good fare, late hours, and in-door life, was sitting at the wine-table in the midst of friends and merriment. For some reason which was not very explainable to him, he took but little part in the mirth; he felt a drowsy low-spiritedness and a slight nausea. Then he had a singing sound in the ears, and some degree of pain in the ear. Suddenly the pain moved in position and increased in intensity. It moved to one particular tooth, and the agony was irrepressible. A strong man before, he was struck down now. He left his friends, and, unable to bear the torment, went to the nearest dentist for relief.

“The dentist he called on, a conscientious man, could find no tooth carious, and was opposed to extraction. But the patient, fixing on what he supposed the faulty tooth, insisted on removal, and a sound tooth was drawn. Strange to say, the extraction seemed to give relief, and a dose of physic completed the cure for the time. A few weeks afterwards, under circumstances almost identical, the same gentleman had a second seizure; but now the seizure, equally severe, was in the ball of the great toe. Quite unconscious of its meaning, this brief attack, for the pain subsided in a few minutes, passed without comment; but eventually another return of the pain in the toe ended in an outspoken and obstinate attack of gout. One day when I was visiting him, and talking to him about his symptoms, asking him, indeed, what premonitory signs had warned him of his diathesis, he cut me short with the question: ‘Doctor, did you ever see a gouty tooth?’ I said ‘No, I think not.’ ‘Then,’ said he, ‘I’ll show you one,’ and forthwith he produced the molar, and gave to me its history as I have now recorded it.

"I would point out this class of cases to the junior dental practitioner with all the care I can bestow on it, because it belongs even more intimately to him than to the medical man. To the dentist the first application is made in such examples as I have here supplied, and the recollection of gouty odontalgia should not desert him. It showed at once the accomplished man to make out a ready diagnosis in instance of this description; and really the diagnosis is not difficult. The circumstance under which the pain is elicited, the character of the pain, the accompanying dyspepsia, the free habit, the healthy tooth, and the frequent inability of the patient to fix determinately on the aching member, are sure indications, in the majority of cases, of the disease which is presented for treatment."

Having read the contents of this volume in the most careful manner, with benefit and pleasure, (for the author's *matter* is not only excellent, but his *manner* of communicating it is also *attractive*,) we now dismiss the work with the emphatic expression of opinion that it is by far the best treatise on the subject that has yet been published, trusting that it may, as it justly merits, meet with a large and rapid circulation with the medical and dental professions in this country, and be adopted as a text-book by the dental colleges and private preceptors.

THE SOUTHERN DENTAL EXAMINER. J. P. H. BROWN, Editor. GEO. S. FOUKE, Corresponding Editor. May, 1860. Atlanta, Ga. pp. 18.

The first number of this magazine has been received. In the prospectus the publishers remark: "No doubt many may think it the worst of folly to commence the publication of another dental journal, when there are already more before the profession than are well supported. This may be true when applied to the North and West; but we think that the dentists of the South demand a medium through which they can express and interchange their views with mutual benefit."

That there are more dental journals published than receive a remunerative support, or an income enabling their proprietors to offer pecuniary inducements sufficient to make it an object to those who can, but will not, contribute, (for there are but few who will write even occasionally from a sense of duty, for the love of the thing, or the actual benefit to themselves in an educational point of view,) that much which is presented reflects little credit upon the profession, and that these circumstances tend to depreciate their quality, is an unquestionable fact. But there are advantages in a large number, and diffused localizations, which, to a great extent, compensate for defects that must be admitted to have an existence. By means of local journals a greater number of minds are brought out and cultivated, for young and inexperienced writers are much more likely to contribute to magazines published in their vicinity; particularly if their aid is personally solicited, a desire for self-improvement in the science and art of the profession arises, more careful observation of facts, and a more systematic recording of experiences are induced, a greater number

of facts from a variety of sources are thus presented, and more materials for arriving at just conclusions are rendered accessible, local emulation is excited, and the masses of the profession are aroused and benefited. By these means the quantity of our literature will be increased, and its quality must ultimately be improved.

We trust that the objects, as set forth in the first number of the *Examiner*, may be fully carried out, and that the enterprise may meet with support and encouragement.

DR. WELLS, THE DISCOVERER OF ANÆSTHESIA.—A pamphlet under the above title, presenting the claims of Horace Wells to the credit of *discovering* and *first applying* the anæsthetic properties of *nitrous oxide* and *sulphuric ether* in the performance of surgical operations, accompanied by a circular letter from his widow appealing to medical men generally, to carefully investigate the testimony presented in support of his claim, has been received. Mrs. W. asks for this investigation merely as an act of justice to her husband's memory, that his claim to priority may be established beyond a question of doubt.

With regard to *priority in suggesting* the use of *nitrous oxide* in surgical operations, the *credit* undoubtedly belongs to Sir Humphrey Davy, who, in the year 1800, wrote: "*As nitrous oxide, in its extensive operation, appears capable of destroying pain, it may probably be used with advantage during surgical operations in which no great effusion of blood takes place.*"

On the other hand, if the testimony of *many members of the medical profession*, and other persons of highly respectable character, some of whom had been placed in the anæsthetic state and operated upon by Dr. Wells, are to be relied on, the credit of first making a *practical application* of this suggestion unquestionably belongs to Horace Wells. Such being the case, *if Jenner, in taking advantage of the suggestion of a dairy-maid, is entitled to be placed high on the roll of those philanthropists who have conferred lasting benefits upon their fellow-beings, for introducing that great boon, vaccination, Horace Wells is entitled to equal credit as a benefactor to suffering humanity, by demonstrating the benefits flowing from the use of anæsthetics, for he not only had the first operation attempted in the anæsthetic state performed on himself, but also made no secret of the matter, made no attempt to secure a patent, and only desired that a knowledge of the beneficial effects of anæsthesia should be spread throughout the world.* Unfortunately for himself, he lacked the *nerve* that should always enable the discoverer and reformer to brave the scoffs, the jeers, and the opposition of the world. He was too easily influenced by others, and thus the credit which justly belongs to him has, in the minds of many, been awarded in another direction. We say this after a careful and impartial consideration of *all the testimony* that has been presented by the different parties laying claim to the discovery.

Professor Flagg, who was one of the first to adopt the use of ether in his practice, and who has had a very large experience, and taken a very deep interest in everything connected with, and has given the history of the introduction of ether as an anæsthetic a careful investigation, with no other interest or feeling in the matter than what he believed to be a desire to elicit truth, says in his work on Ether and Chloroform.*

"It appears, from well substantiated documents, that in the year 1844 Mr. Horace Wells, of Hartford, Conn., a dentist by profession, becoming seriously troubled with an aching tooth, conceived the idea of placing himself under the influence of nitrous oxide gas, while submitting to its extraction. The experiment succeeded far beyond his expectations, he feeling no pain whatever in the operation. Mr. Wells immediately made known his discovery to many friends in that city, operating upon quite a number with equally happy results. He, by advice, soon visited New York, where he was told that sulphuric ether would have precisely the same effect as the article he was using. He used the ether in one or two cases, and preferred it, for the reason that no labor was necessary in its preparation for immediate use. But, upon returning to Hartford, he was persuaded to *abandon the ether; his medical friends entertaining some doubts as to its perfect safety.*

"In the fall or winter of that year, Mr. Wells visited Boston for the purpose of calling the attention of medical men in that city to the importance of his discovery. He so far succeeded as to obtain a hearing before the medical class then attending lectures; and, it appears, induced Dr. Warren to allow him to administer the nitrous oxide to a patient, who was about to undergo some important surgical operation. In this case, some delay occurring, through excitement or oversight on the part of Mr. W., it is stated that Dr. Warren became impatient, and proceeded in the operation without its use.

"Previously to Mr. Wells establishing himself in Hartford, he had practiced as a dentist in Boston, and while in this latter city, a young man by the name of Morton entered his office as a pupil. In a short time their names appeared together as joint partners, (Wells & Morton,) but soon after this Mr. Wells retired, and left the business in the hands of Mr. Morton. As the story goes, Mr. M. hired his office of Dr. C. T. Jackson, and occasionally saw Dr. J. at his laboratory. Mr. Wells informs us, that upon his visit to Boston, on the occasion above alluded to, he saw both of these gentlemen, (Dr. Jackson and Mr. Morton,) and that they discouraged his proceeding in this *inhaling matter* any further, denominating it 'A HUMBUG!' No one of sufficient influence could be found in Boston to extend to Mr. Wells a helping hand on this occasion, in this his most excited moment. He returned to Hartford immediately, —baffled, dejected, and almost heart-broken. The reaction threw him upon a bed of sickness, which lasted some months. At length he recovered, and resumed his business, trusting to his success in his private practice for the eventual reputation of *anæsthesia.*

"During the summer, or early in the fall of 1846, (nearly two years after Mr. W.'s visit to Boston,) the public are startled by the announcement of the most wonderful discovery of the age. The surgeons of Massachusetts General Hospital, together with a few initiated, become aston-

* Ether and Chloroform, by J. F. B. Flagg, M.D. Phila., 1851, pp. 21, 30.

ishingly fervent in their praises of an 'INVENTION' which required the combined efforts of scientific attainments and mechanical skill to develop. Classical erudition came to their aid, and, for a season, good, old 'sulphuric ether' was made to succumb to the name of 'LETHEON.'

"A circular is broadly cast through the length and breadth of the country, announcing that '*a compound*' has been discovered, which, by breathing into the lungs, induces so deep a slumber as to enable us to perform the most painful surgical operations with entire unconsciousness on the part of the patient. In connection with this announcement are the names of Dr. Jackson and Mr. Morton as its *combined* [?] discoverers.

"A patent is sought, and, under the protection of a caveat, agents are appointed to traverse the country, selling to all, *who will buy*, the right to use the '*compound*.' Thus qualifying everybody and anybody in the use of this powerful agent that would pay the sum of—

"In cities over 150,000 inhabitants.....	\$200 for seven years.
" " " 50,000 and less than 150,000.....	150 " "

And so on, down to—

"In cities under 5000	\$37 for seven years."
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"Very soon after the *caveat* had been secured, a rupture occurred between these two professed discoverers, which has led to a vast amount of controversy, much bitter feeling, and some truth. They each deny that any credit belongs to the other. This is true to a very considerable extent; but I hope to show, in as brief a manner as possible, that the world is really under obligations to them both, for the sudden and simultaneous adoption of ether in surgical practice in all civilized countries.

"The known reputation of Dr. Jackson as a scientific chemist carried with it much force when the assurance came from him that pure washed sulphuric ether was innocuous, (in view of a healthy condition,) when taken into the lungs sufficiently to induce narcotism.

"The bold experiments of Mr. Morton, even to the shutting off or partial exclusion of atmospheric air, and the holding of a burning candle within a few inches of the mouth of a patient while under its influence, are certainly worthy of much consideration. They serve at least to imbue us with additional confidence in its safety, when used in a prudent, careful, and proper manner.

"There is so much that is disagreeable to dwell upon in the contest which was carried on between the parties, professedly friendly to the various claimants for discovery in this matter, for more than a year, that I feel anxious to draw this part of ether history to a rapid close, and only desire to state what seems to me the most rational conclusion as to its discovery:—

"1. To Sir Humphrey Davy unquestionably belongs the credit of first suggesting the idea of inhaling into the lungs *some* agent which would deaden sensibility during painful surgical operations.

"2. To Mr. Horace Wells, of Hartford, (now deceased,) as unquestionably belongs the merit of having first *demonstrated* this happy idea, by using both *nitrous oxide* and *sulphuric ether* for this purpose.

"3. To Dr. Charles T. Jackson, of Boston, the thanks of the world are due for lending that influence which his well-earned reputation so ad-

mirably qualified him to do, in establishing confidence in the public mind in the use of sulphuric ether as a substitute for the nitrous oxide; and

"4. To Dr. W. T. G. Morton, dentist, of Boston, we are under obligations for his indefatigable exertions in securing the attention of leading medical men to this subject; and thus rapidly expediting the use of sulphuric ether in connection with the practice of surgery."

The accompanying extract, taken from the pamphlet received, contains a synopsis of the testimony given in support of Dr. Wells's priority in the employment of anæsthetic agents:—

"Thomas W. Kennedy, M.D., and P. B. Mignault, M.D., make oath before Hon. Josiah Quincy, Mayor of Boston, that in the fall of 1844, while attending medical lectures given by Dr. Warren, of the Massachusetts General Hospital, they were addressed by Dr. Wells on the subject of 'rendering the system insensible to pain during the inhalation of exhilarating gas.' Dr. C. A. Taft testifies to the same fact, and Dr. John C. Warren certifies that these gentlemen were all in attendance on his lectures at the time specified.

"Daniel T. Curtis, a citizen of Boston, also testifies before the Mayor that he was present with the medical class on the occasion referred to.

"S. Fuller, M.D., of Hartford, Conn., certifies to the fact that Dr. Wells had the reputation 'for more than two years prior to March, 1847, in that city, of having made a discovery which enabled him and others to extract teeth without pain by the use of exhilarating gas;' and he adds: 'There is no doubt in my mind that said Wells discovered and made the first practical application of this principle in surgical operations.'

"Dr. P. W. Ellsworth declares that to his 'full knowledge, nitrous oxide gas was administered two years earlier than this, [the period claimed by Morton and Jackson,] namely, in 1844, by Wells, and that many teeth were extracted without pain under its influence; and that Wells went to Boston at that time, as I was then informed, for the purpose of introducing the gas to the attention of surgeons in that city.' Dr. Ellsworth adds: 'In my mind there is not a shadow of doubt that the whole merit of the discovery of this thing rests with Wells, and with him alone.'

"E. E. Marcy, M.D., of Hartford, (now of New York,) testifies to operations performed by Wells, under the influence of *ether*, in 1844, and says:—

"'In conclusion, I beg leave to offer it as my opinion, *that the man who first discovered the fact that the inhalation of a gaseous substance would render the body insensible to pain during surgical operations, should be entitled to all the credit or emolument which may accrue from any substances of this nature.*'

"G. B. Hawley, M.D., testifies in 1847 to the fact that he 'was familiar with the successful operations of Wells in extracting teeth, without pain, by the aid of nitrous oxide gas, and he alone was regarded as the author of the discovery.'

"John M. Riggs, surgeon-dentist of Hartford, Conn., certifies before the Mayor of that city, that in November, 1844, he was consulted by Horace Wells 'as to the practicability of administering nitrous oxide gas prior to the performance of dental or surgical operations;' that the trial was made; that the *first* experiment was successful, and subsequent operations continued to be so; 'that the said Wells avowed his intention

to communicate his discovery to the dental and medical faculty, and in pursuance of that intention proceeded to the City of Boston, State of Massachusetts, for that purpose, while he (Dr. Riggs) continued to use the said gas with great success, the patients assuring him that they felt no pain.'

"Mylo Lee, citizen of Hartford, testifies before the Mayor of that city to having had a tooth extracted by Dr. Wells in November, 1844, while 'under the influence of the nitrous oxide gas,' that 'the operation was attended with no pain whatever.'

"F. C. Goodrich, citizen of Hartford, also certifies before the Mayor of that city, that 'during the winter of 1844' he 'learned that Dr. H. Wells had discovered the mode of extracting teeth *without pain*;' that it 'was accomplished by administering to the persons operated upon exhilarating gas or vapor, which, it was asserted, rendered the human system insensible to pain;' that 'the doctor was most successful, extracting for me a large, firmly-set bicuspid tooth without the slightest sensation of pain;' that he witnessed 'the same process by Dr. Wells upon several individuals, accompanied in every instance with perfect success.'

"J. Gaylord Wells, citizen of Hartford, also testifies before the Mayor 'that more than two years prior to this date,' March 26, 1847, being informed of the discovery of Dr. Wells, he 'inhaled the exhilarating gas, and, under its influence, had six teeth extracted without pain.' He adds: 'That more than eighteen months from the time I first submitted to this operation by the application of gas, I heard no other name mentioned as the discoverer except that of the above-named Horace Wells.'

"Wm. H. Burleigh, Esq., editor of the *Charter Oak* newspaper, now of New York, testifies essentially to the same facts—namely, that two years prior to March, 1847, he had two teeth extracted by Dr. Wells, without the *least suffering*, 'while under the influence of the gas.'

"Dr. Marcy subsequently testifies further. He certifies before a magistrate of Hartford, by certificate dated December 1st, 1849, that he 'was aware of the fact of Dr. Wells's visit to Boston in 1844, for the purpose of communicating his discovery to the faculty of that city. I also had an interview with Dr. Wells soon after his return from Boston, when he informed me that he had made known to Dr. C. J. Jackson and Mr. Morton the anæsthetic properties of the nitrous oxide gas, the *ether vapor*, and *other analogous substances*. He also informed me that he had made an imperfect trial with the gas before Dr. Warren's class, but that the experiment was not satisfactory on account of the patient's getting an insufficient quantity of the gas. He further informed me, that his discovery and his whole idea respecting anæsthetic agents was ridiculed by Dr. Jackson and other medical men of Boston, *but that his former pupil, Morton, swallowed this ridiculous idea greedily, and kept it down until 1846, when he ejected it at Washington in the form of a patented compound—mark the word, compound—called Letheon.*'

"And Dr. Ellsworth, also, in another certificate of subsequent date, says: 'I am perfectly aware of Mr. Wells's visit to Boston, for the purpose, as stated at that time, of announcing his discovery, and giving it a fuller trial at the hospital in that city, and also his dissatisfaction with the results of his visit, both as to the success of his experiment before Dr. Warren and his class, and the reception with which his idea met.' He adds: 'Having full information respecting the circumstances attending the birth of this discovery, and also having carefully perused the state-

ments of Jackson and Morton, I have seen no reason to change my opinion, or in the slightest manner doubt that to Wells alone belongs the *whole* honor of first using any substance by inhalation for the mitigation of pain.'

"Sixteen members of the medical fraternity of Hartford—Drs. Fuller, Sumner, Rogers, Beresford, Grant, Barry, Marcy, Taft, Dodge, Ellsworth, Russell, Hawley, Hunt, Crary, Schue, and Lee—also express their implicit reliance upon the statements made in the various certificates quoted as bearing upon the period of the discovery by Dr. Wells, and conclude their statement in the following words:—

"'We take pleasure, also, in expressing our entire confidence in the integrity of the said Horace Wells, than whom no person in our city is more favorably known as a gentleman of honor and integrity. We know, moreover, that he has for several years past successfully devoted himself to subjects pertaining to invention and discovery.'"

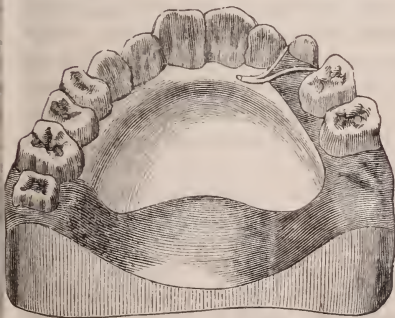
TREATMENT OF IRREGULARITY OF THE PERMANENT OR ADULT TEETH. By E. H. ANGELL, Dentist, San Francisco, Cal.

[CONCLUDED.]

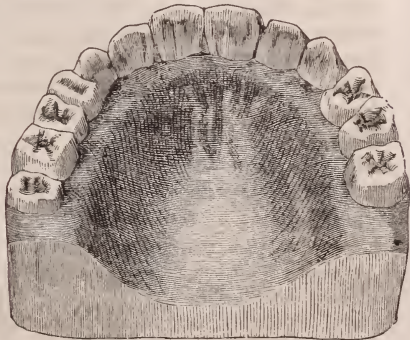
"The rotating shaft was now removed, and a spring was soldered to the plate at the point to which the nut was originally affixed, and from which it extended, so as to press upon the anterior approximal surface of the first bicuspid, as seen in diagram No. 4. This spring in a few days moved this tooth so as to leave sufficient space to receive the cuspidatus. The original collar, adapted to the posterior approximal surface of the lateral incisor, was extended and curved so as to press upon the labial surface of the cuspidatus, and within a week from this application we had the satisfaction of seeing it within the arch it was originally intended to occupy.

"While this machinery had been at work, nature had come to the rescue and supplied the hitherto hidden second molar, so that the mouth is now in the condition indicated in diagram No. 5. To the best of my

No. 4.



No. 5

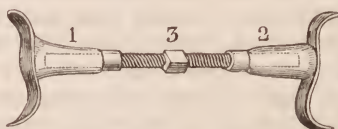


knowledge this is the first instance in which an apparatus of the character in question has been employed for correcting irregularities of the teeth. At the Annual American Dental Convention, assembled in Boston in 1857, Dr. W. H. Dwinell, of N. Y., spoke of the employment of the 'simple screw and nut in conjunction with plates,' for the correction of

irregular teeth. He also stated that he had met with great difficulty in making fixtures that were strong enough, while they were sufficiently small to be practicable, until he had employed steel screws with zinc attachments to prevent rust. In using the simple shaft, as employed in the foregoing case, independent of any plate, there is no difficulty in making the apparatus of sufficient size and strength to widen the maxillary arch of even an adult. The shaft in question was made from sixteen-carat gold wire No. 13, according to Stubbs's gauge. Finer gold may be used, for instance that alloyed with platinum as usually employed for clasps; but this is inferior to the first, as its hardness renders the cutting of a good and perfect thread more difficult.

"I have since employed the same style of apparatus with equal success in correcting irregularities of the incisors when they overlap each other. For this purpose I employ an apparatus as represented in diagram No. 6.

No. 6.



The collars at either extremity are intended to rest upon the palatine or lingual surface of the bicuspid when the wrench is applied to the shaft, as already described. In these cases it is only necessary to secure sufficient space, when the irregular teeth may be turned in their sockets without difficulty, and may be as easily fixed in correct positions. When the cuspidati are both outside the arch, and the patient is not too old, so as to render the treatment impracticable, the apparatus should have a single collar at each extremity, as seen in figure 2, diagram No. 7, which represents a tubular nut with collar affixed.

"These collars should rest upon the palatine or lingual surfaces of the second bicuspid, as the first cannot be moved outward without augmenting the difficulty sought to be corrected. When the arch has been sufficiently widened, the first bicuspid may be moved posteriorly, by the apparatus exhibited in figure 1, diagram No. 7, the nut through which the shaft revolves being soldered to a plate adjusted as described in diagram No. 3. When sufficient space has been secured for the admission of the cuspidati, they may be brought into the arch, as already described.

No. 7.



"The uniform and gradual pressure exerted by this apparatus cannot fail to commend it in the strongest terms for correcting the general irregularities of the teeth. It offers but little impediment to articulation, and the ease and rapidity with which it accomplishes the work is as gratifying to the patient as it is satisfactory to the operator."

PERISCOPE OF MEDICAL AND GENERAL SCIENCE IN THEIR RELATIONS TO DENTISTRY.

BY GEO. J. ZIEGLER, M.D.

"On the Influence of the Nervous System on the Parotid Secretion; Discovery of the Motor Nerve of the Parotid Gland. BY M. CLAUDE BERNARD.—The principal questions connected with the history of the parotidian secretion having been fully discussed in our previous lectures, it now remains for us to investigate the part which, in that physiological act, devolves upon the nervous system.

"That glands of every description are dependent upon nervous influence for the due performance of their functions, and that the impulse which originates with the great nervous centres is, in every case, the prime motor of secretion, is a perfectly well-known fact; and, without alluding to other secretions for the moment, has not an experimental demonstration of this great principle been laid before you, as far as the salivary glands are concerned? Have we not seen the various impressions made upon the organs of taste; the action of acids; and even the mere excitement created by the sight of food within the animal's reach, call forth instantaneously an abundant flow of this liquid? You have already witnessed, more than once, the successful performance of these experiments; we may, therefore, considering the fact as fully established, proceed to seek for its explanation.

"Glands of every description are invariably provided with three distinct orders of nerves: motor, sensitive, and ganglionic. Now, as secretion cannot, of course, be supposed to result from the action of sensitive nerves, the agent through which the process is accomplished must evidently be looked for in the two other classes. In the submaxillary glands the ganglionic system exerts an undeniable influence on the salivary secretion. But, as far as the parotid is concerned, the reverse appears to be the case. Whenever the ramifications of the sympathetic nerve, which extend to the latter gland, are galvanized, or otherwise excited, far from being increased, the secretion is constantly diminished. In order to convince you of this, we shall perform before you an entirely novel experiment; you will thereby be enabled to judge for yourselves. The sympathetic nerve being divided, we shall galvanize the extremity which remains connected with the gland, while the animal is engaged in the process of mastication; and you will then perceive that far from communicating an additional impulse to the physiological action of the gland, the excitation of the ganglionic system actually impedes it.

"(A horse is now brought in; the ductus Stenonis having been previously opened on both sides in this animal, and a tube introduced, M. Bernard divides the sympathetic nerve on one side only. A bundle of hay being then placed before the animal, it begins to feed with great avidity; and the flow of saliva appears to be perfectly equal on both sides.)

"You see, gentlemen, that the gland which has just been withdrawn from the influence of the ganglionic system continues to fulfill its functions with perfect regularity. Let us now galvanize the peripheric extremity of the divided nerve, without interrupting the animal's mastication.

"(A powerful galvanic apparatus being brought to bear upon the nerve, the flow of saliva is slightly diminished; it is even completely suspended for a moment, at the beginning of the experiment. On the opposite side the amount of saliva produced appears to have slightly increased.)

"You therefore perceive, gentlemen, that the influence of the ganglionic system, far from increasing the parotidian secretion, acts in direct opposition to it. There is, however, no room for astonishment in this; you are aware that the sympathetic nerve, when excited, produces contraction in the arteries, and thereby lessens the flow of blood to the part.

"The motor nerves, therefore, exclusively possess the property of stimulating the action of these glands; but to what particular branch is the parotid indebted for the impulsion it receives? As regards the submaxillary glands, we are aware that the chorda tympani fulfills the office, and analogy points to the existence of some similar branch in connection with the parotid; but hitherto no physiologist had been able to fix upon the very nerve which regulates the functions of this glandular apparatus, and bring the action of galvanism to bear directly upon it.

"After a long and tedious series of experiments, we had the satisfaction of discovering, yesterday,* the motor nerve of the parotid glands; and, in one of our next lectures, we shall repeat, in your presence, the decisive experiment.

"The facial nerve, as far as analogies may be trusted, would appear to be the natural source of the motor branch connected with the parotidian secretion; anatomists have described, as you are well aware, a vast number of ramifications arising from its trunk, some of which merely pass through the gland, while others are exhausted within it. We had therefore been led to suppose, that to some of the divisions arising from this nerve the power of exciting this glandular secretion was to be attributed; but, two years ago, after having divided the facial nerve immediately after its passage through the foramen stylo-mastoideum, we ascertained that the properties of the gland remained exactly the same as before; in animals on which this operation had been performed, (a tube having been previously passed into the Stenonian duct,) the application of vinegar on the tongue constantly produced a flow of saliva; it therefore became evident that if the nervous influence, which presides over this secretion, was really derived from the seventh pair, the branch on which these functions devolve must have separated from its parent trunk before it emerged from the Fallopian canal. In accordance with these views, we divided the facial nerve within the petrous process, as close as possible to its cerebral origin, the auditive nerve being, of course, simultaneously destroyed, and since, after this operation, the gland remains entirely paralyzed, we were naturally led to suppose that one of the ramifications, derived from the seventh pair, during its passage through the Fallopian canal, enjoyed the property of supplying the parotid with the necessary stimulus; but all our attempts to divide separately this particular branch remained entirely fruitless.

"A large number of branches arise from the facial nerve before it reaches the stylo-mastoideum foramen; but only three of these can be supposed to exercise an influence over the salivary secretion, viz.: the great petrosal nerve, which falls into Meckel's ganglion; the lesser petrosal

* January 19, 1860.

nerve, which reaches the otic ganglion; and, lastly, the chorda tympani, which unites with the fifth pair. This latter branch is known to preside over the functions of the submaxillary gland, and is, therefore, unconnected with the parotidian secretion; we were thus led, by a strict logical process, to suppose that *one* of the two petrosal nerves was the motor branch of the parotid glands: now, the larger branch having been divided, without producing the slightest change in the secretion, we found ourselves compelled to suppose that the lesser petrosal nerve enjoyed this physiological power; and analogy entirely confirms our hypothesis; for if a special ganglion is connected with the submaxillary secretion, why should not a similar ganglion exist in connection with the parotid? Now, if the lesser petrosal nerve were indeed the channel selected for the passage of nervous influence into this gland, the otic ganglion would here fulfill the functions which, in the other case, devolve upon its congener. But analogy cannot be safely trusted to by the physiologist; and the imperfections of our theories render direct observation the only safe guide in practice.

"The slenderness of the nerve which, as you are aware, presides over the functions of the submaxillary gland, entitles us to suppose that in the case of the parotid, the motor nerve is equally of very small dimensions. We therefore determined, however tedious the process might appear, to dissect away the parotid gland, on a living animal, without injuring the large vessels which connect it with the body; for as long as these remain uninjured, the functions of the gland equally remain unimpaired. In the course of this operation, we separately divided each nervous ramification which we discovered, in order to ascertain whether the functions of the gland were anywise impaired by this mutilation; after the section of each small nerve, a few drops of vinegar were poured into the animal's mouth, so as to excite the flow of saliva which in the normal state is invariably excited by this agent.

"Our first experiments having been unsuccessful, we modified the operative process; we had at first attempted to dissect away the gland from before; we then resolved to attack it from behind; in this manner the nerves are laid bare with greater facility. This last attempt was finally crowned with success, after the operation had lasted five hours.

"In the first place, a long incision was made behind the external ear; and the teguments being dissected, the facial nerve, emerging from the foramen stylo-mastoideum, was immediately discovered; the gland being then drawn forward, all the ramifications arising from the facial trunk were separately divided, and then successively galvanized; a negative result having been obtained in every case, we arrived at last, after dividing all the branches of the facial nerve, upon a branch which arises from the fifth pair, viz.: the superficial auriculo-temporal nerve. Several of its divisions were cut without producing any result on the secretion, although the animal, in each case, gave signs of acute suffering,—a fact easily accounted for by the highly sensitive character of this nerve. At last, at the very moment when we were about to conclude the experiment, a small artery having been tied, and a slender nerve compressed in consequence, the secretion of the gland was arrested for a moment; we then divided this branch, and the glandular apparatus became immediately paralyzed: the action of acids poured on the animal's tongue no longer elicited the usual flow of saliva; while the application of galvanism to the peripheric extremity of the divided nerve instantly produced an abundant secretion.

"We had, therefore, at last discovered the motor nerve of the parotid gland; this branch, which is derived from the inferior maxillary division of the fifth pair, appears to be composed of four or five parallel but perfectly distinct ramifications. Its dimensions are insignificant; it arises from the auriculo-temporal nerve, and may be easily discovered on dissecting these parts. It is, in fact, closely connected with the internal maxillary artery, which it closely pursues in its course, although not in the same sense as that in which the blood flows, but in the opposite direction. The precise anatomical disposition of this little branch will be the subject of our future investigations.

"You perceive, gentlemen, that an important difference exists between the submaxillary and parotid glands, as far as the influence of the ganglionic system is concerned. In the first case, the powers of the great sympathetic nerve favor the physiological act, which they impede in the second; or, to describe with greater precision the phenomena to which we allude, the sympathetic nerve, when excited, diminishes in a slight measure the secretion of the submaxillary glands, while it imparts a greater degree of viscosity to the liquid produced. As to the parotid, the only result produced is a notable diminution in the abundance of the secretion, the nature of which remains exactly the same. The chorda tympani, when galvanized, is known, on the contrary, to produce an abundant aqueous secretion; and, as the action of the newly discovered motor nerve on the parotid gland is entirely similar, we may conclude that these two branches belong to the same class of special nerves, and hold the normal secretions of the salivary glands under their direct influence. It would, therefore, appear, that each gland is provided with two distinct classes of nerves; to the first belongs the property of stimulating the secretion, properly so called—that is to say, the production of a substance peculiar to the gland; to the second belongs the power of exciting the transudation of the aqueous principles contained in the blood,—for the water contained in various secretions is, as we have elsewhere shown, entirely derived from the blood. Let the action of a gland be excited, and let the blood which flows in the corresponding veins be analyzed during the process of secretion, it will then be found to contain less water than arterial blood, the difference being exactly equivalent to the quantity of water contained in the secretion itself.

"If, therefore, the sympathetic nerve does not communicate any special property to the liquids which the parotid produces, we may safely conclude that nature never intended this apparatus to produce any characteristic substance, and that to deprive the blood of its water, to a certain amount, is the only power conferred upon these glands.

"It now remains for us to examine the results of our recent discovery, whether considered with respect to its direct relations with the salivary secretion, or viewed in a totally different light, as connected with secretion in general; such, gentlemen, will be the subject of our next Lecture on Operative Physiology."—(*Medical Times and Gazette*, March 24.)

Dental Anomaly.—The following singular case and remarks thereon are reported in the proceedings of the N. Y. Medico-Chirurgical College, (*Amer. Med. Monthly*, May): "DR. SAYRE presented a specimen having the appearance of some two or three molar teeth, half formed, and fused together. They were discharged from the ear of a little girl who visited his office that afternoon. The history of the case was so curious and in-

teresting, that he had requested her to remain that the members might have an opportunity of examining her. The history is as follows:—

“Elizabeth —, aged eight years, had the measles in Scotland when she was five years of age, which was followed by swelling in the neck and all of the right side of the face. The mouth was nearly closed by the swelling of the gums and roof of the upper jaw. The ear was raised upward, and pushed outward by an immense swelling in the region of the mastoid process of the temporal bone. An abscess formed, and was finally opened just below the ear. A large amount of pus escaped, and after about three months she had another febrile attack, followed by intense pain in the ear, which was relieved by a rupture of the tympanum, and the discharge of an immense quantity of pus from the ear. This offensive discharge kept up for about eighteen months, when a *rudimentary tooth* escaped through the *meatus auditorius externus*, which is now in the possession of Dr. Watson, of this city. About four weeks after this, the present specimen was discharged. This specimen is about $1\frac{1}{4}$ inch long, a half inch wide, and about a half inch thick. It appears to consist of the three posterior molar teeth of the upper jaw. In two weeks after this another portion was discharged, which is about three-quarters of an inch long, half an inch wide, and one-quarter of an inch in thickness. This appears to consist of the two posterior molar teeth of the lower jaw. After the escape of these bodies, she was relieved of the pain in a very great measure, and is now perfectly well, but has no hearing on the affected side.

“Dr. Nelson remarked, that in examining this child at the present time, it was quite easy to see that all the milk teeth are still remaining; consequently the specimens here exhibited cannot belong to those primitive teeth. Whence, then, come these teeth? There is but one way by which we can account for this strange phenomenon, and that is, by supposing it to be the result of the process of involution. We see so many of these cases where there is a foetus within a foetus, or at least a small portion of a foetus within another, that this manner of accounting for the appearance of these specimens is not rendered improbable. The portion involuted sometimes grows to a certain extent, or the development is arrested quite early. The individual in whom these portions are contained sometimes grows up to an advanced age, and then the portion involuted may be discharged by ulceration, or it may remain inclosed in a cyst and never produce any trouble.

“Dr. Meier stated that formations of this kind were not unfrequently found in the interior of ovarian cysts.

“Dr. Clark inquired if any one had seen these pieces come out.

“The mother of the child, who was present, stated that she was the only one who was by when the pieces came from the ear. In the first instance, her attention was called to the child by its screaming from pain in the ear, directly after getting up. On looking into the ear, she observed a whitish substance, which she supposed was a bit of cotton which had been placed there the evening previous; on taking it out, however, it proved to be a tooth. The expulsion of the second specimen was attended by the same symptoms; so far as she could judge, these teeth seemed to come directly from the external auditory canal.”

It is, however, more probable that the compound teeth here described are a result of the fusion of the germs and premature development of some of the permanent teeth, rather than an extraneous genesis of these

organs in consequence of fœtal involution, as suggested by one of the speakers.

Adventitious Odontogeny.—In the course of an interesting paper on "remarkable ovarian tumors," in the *N. Amer. Med.-Chir. Rev.* for May, DR. JOS. H. WYTHES gives the following account of a case of this peculiar organic anomaly, which came under his notice, and a brief resumé of several other instances on record. The tumor spoken of was taken from a young lady aged twenty-four, who died after prolonged suffering. At the post-mortem it was found that "immediately in front of the bladder was an ovarian tumor or cyst, oval in shape, about five inches long and four broad. On slitting it lengthwise, a large mass of sebaceous matter was seen, full of hair, and two irregular bones were observed in the membranous wall, into which eleven well-formed teeth were inserted. One of these pieces had two rows of teeth, some molar, others irregular in shape. This cyst had been the origin of all the former difficulty, as it was found adherent to the descending colon and peritoneum in the neighborhood of the old sinus, as well as to the fundus of the bladder, which was torn in the effort to detach it. The descending colon was considerably diminished in calibre, and had been perforated from side to side. The uterus had been so pressed upon by the tumor as to be flattened, and distorted into an ante flexion. The right ovary appeared healthy, saving a round, hard, ivory-like concretion, the size of a pea. * * * *

"The pieces of bone in the tumor were covered with membrane presenting all the characteristics of true skin, from which proceeded the hair before alluded to. Under the microscope, this hair presented nothing remarkable, save the comparative absence of pigment, and a sharply serrated appearance of the outer imbricated scales. The fibres, as might be expected, seemed more loosely bound together than in other hair. The amount of hair, when washed from sebaceous matter, was about a large handful.

"Instances of cutaneous proliferous cysts are given by Mr. Paget, in his *Surgical Pathology*, as occurring in the subcutaneous tissue, in the brain, in the umbilicus, and in the scalp, and teeth-bearing cysts in the jaws, particularly in the antrum. One case is recorded in which the tumor was found in the anterior mediastinum of a woman twenty-one years of age, and contained skin and fat, serous fluid, sebaceous matter, and two pieces of bone, like parts of upper jaws, in which seven well-formed teeth were imbedded. Four similar cases occurring in the ovary are on record. Two from the museum of the Royal College of Surgeons, and two from an essay by Lang. In one of Lang's cases more than three hundred teeth were found in the ovary; in the other, a piece of bone, like part of an upper jaw, with forty-four teeth. 'It is only,' says Mr. Paget, 'during the vigor of the formative forces in the fœtal or earliest extra-uterine life, that cysts thus highly organized and productive are ever formed.' The history of this case, however, causes us to entertain a doubt upon the correctness of this opinion. From this it appears that she first menstruated when between fifteen and sixteen years of age, and that she imprudently washed all over in cold water, which produced illness, rendering medical treatment necessary. Although relieved, she had no further menstrual discharge till she was seventeen years old; yet during this time such was the vigor of the vital forces that she grew nine inches in height in three months time, as ascer-

tained by measurement. This fact, which is well authenticated, points out that period as the time, in all probability, of the formation of the cyst. When between seventeen and eighteen years old a peculiar fetor of the breath was observed, which continued until the discharge by the urethra, and was afterwards always noticed when no discharge occurred."

Parthenogenesis.—It is a generally received axiom in physiology, that all life proceeds from a primary germ or organic molecule, formed by the union of the genetic radicles of opposite sexes, and that in no case does it originate by spontaneous generation from the inorganic or primitive elements. In the higher forms of life this union of sexual germs in the process of procreation is constant and direct, but in some of the lower types of organization it is less immediate and more remote, as one such union seems to be sufficient for the development of several generations of beings. This "successive production of procreating individuals from a single ovum," is called "*parthenogenesis*." (*παρθενος*, "a virgin," and *γενεσις*, "generation.")

The operation of this parthenogenetic law does not, however, seem to be exclusively limited to the lower forms of life, but extends upward to the higher and more complex organisms, and appears indeed, to be active to some extent even in the human system, as is seen in the adventitious production of hair, bone, teeth, and other structures in different parts of the economy, and probably also in the evolution of one body within another, as in the case of a fœtus within a fœtus, etc.; and although these abnormalities may be partially explicable upon the hypothesis of a process of germinal involution by the accidental envelopment of one fecundated germ within another, they are not thus wholly so, but seem to be connected with the action of the parthenogenetic force. Many interesting facts bearing upon this subject are on record, some of which are presented in the preceding articles. Others may be found in a paper upon the extra-neous development of hair, teeth, and fatty matter within ovarian cysts, by DR. R. LEE, read before the Royal Med. and Chir. Soc. of London, an abstract of which is given in the *Med. Times and Gazette*, March 24. In the discussion which ensued upon the reading of this communication, additional instances of these anomalies of organization were mentioned, and opinions expressed respecting their probable origin. Thus, in the course of some remarks, Mr. Spencer Wells stated that "he had seen great distress caused in a family by the fact of portions of bone and teeth coming away from an ovarian cyst, and being discharged by the anus; the supposition being that it was a case of extra-uterine fœtation, and that the young lady must have been imprudent. As such things might arise from congenital disease of the ovaries, medical men should be very cautious in expressing an opinion calculated to damage the honor of a family.

"Mr. Fergusson regretted that the author had not given a definite opinion as to the possible origin of the tumors described. He had seen many such tumors occurring in the female pelvis, as well as in different parts of the body in both sexes, with hairs and teeth growing within them. In the upper jaw it was not unusual to meet with teeth that could not be accounted for, but in that locality a supernumerary tooth or two might naturally be expected. It appeared to him a remarkable fact, that in tumors about the eyelids and eyebrows the caseous kind of fluid referred to was often found, and occasionally hairs were found growing from the inner surface of the sac. Such hairs had been spoken of as

eyelashes or eyebrows growing inward instead of outward; that, however, appeared to be a very indifferent explanation, because in tumors of the scalp, where hairs might be expected to be found in great quantity, they were scarcely ever seen; neither were hairs met with in any of the external tumors about the pelvis in the male or female. The case mentioned by Mr. Hawkins, of a tumor connected with the sacrum, had little bearing on the present question. In that case the tumor was developed at birth, but in the case referred to by Dr. Lee, the tumor had evidently been developed much later. No hairs had been found in the tumor at any period. It was not until long after manhood that any annoyance was experienced by the patient from the tumor; latterly the tumor became inflamed and suppurated, and the vital powers of the patient were diminished. In the latter part of the history of the case an opinion was given that the tumor was analogous to some of those rare instances in which the partial development of a fœtus had been seen in other parts of the body. His (Mr. Fergusson's) opinion was, that it was one of those cases in which in the early fetal existence there was an attempt on the part of nature to form two; there being an arrest of one, while the other was fully developed."

"Spurious Gold.—The case of Wee Qua, the Chinaman, convicted at Ballarat, and sentenced to twelve months imprisonment with hard labor, for the the sale of spurious gold manufactured by himself, demands full publicity in a gold-producing and gold-buying country. From Dr. MacAdam, (formerly of Glasgow,) who was professionally engaged by the Government for the prosecution, we have received the following account of the matter: The spurious dust, of which we have had the opportunity of inspecting a sample, is, to a casual observer, utterly undistinguishable from the genuine article. Even its weight is so great as to deceive: though on examination, its specific gravity is found to be only two-thirds that of genuine gold. The mechanical imitation of gold-dust shows remarkable care and painstaking in the manufacture. There are three clearly distinguishable forms:—1. Small nuggets, made by casting the alloy through a plate with largish holes, into water, whereby the irregular nuggetty form is obtained. 2. Smaller pieces, like flattened shot, made by casting through smaller holes into water, something similar to the process of casting shot. These pieces are afterwards flattened by a blow of a wooden mallet. 3. Small dust, apparently made by casting through a fine sieve. By mixing the above three shapes and sizes, a mechanical imitation of the usual forms of gold-dust is obtained, which deceives a purchaser who might detect any one of them if offered separately. The metal used for the manufacture of the whole of the three kinds is an alloy consisting chiefly of copper, a little silver, and a trace of gold. They are then covered with fine gold by the electrotype process. The final result is, that the spurious dust contains about eight per cent. of gold. So perfect is the coating of gold over the alloy, that the dust is not affected by either cold or boiling nitric acid (aqua fortis) of the greatest strength, even after being exposed to it for twenty-four hours. On removal of the smallest portion of the gold coating, the acid acts immediately and destroys the nugget. It seems, then, as if the dust, after electrotyping, has been subjected to a preliminary test, and all imperfectly covered pieces removed. The only effect of the acid is to clean and brighten the dust, which appears to have been intentionally dulled by

the application of some kind of grease, so as to imitate the natural color of gold as collected by the digger. Some muriatic acid, however, being added to the nitric acid, producing nitro-muriatic acid, (commonly known as aqua-regia,) the gold coating is immediately removed, and the alloy destroyed rapidly, accompanied with evolution of the ruddy vapor of nitrous acid, and the formation of dark-green coppery solution. These particulars will serve to put our readers on their guard against this most ingenious fraud.—(*Melbourne Leader*;" *Med. Times and Gazette*.)

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“*The Purification of Gold*.—At a recent meeting of the Chemical Society in London an interesting paper was read on deteriorated gold, by Mr. M. Warrington. He found that a large quantity of gold sent from the Bank of England was singularly deficient in ductility; it was so ‘rotten’ that it could not be rolled or subjected to the usual process of coining. He found by analysis that the specimen contained 92 per cent. of gold, 4 per cent. of silver, and 2 per cent. of tin, and a little proportion of antimony. The presence of the latter metal was supposed to be the cause of the alteration in the usual mechanical character of the gold, and it was no easy matter to extract it economically without loss of the precious metal. After several experiments, Mr. Warrington found that oxyd of copper when melted with the gold, in the proportion of about 10 per cent., removed the antimony; the copper parting with its oxyd to the antimony, which then rose to the surface as a powder, and could be cleared off. When, however, this plan was attempted to be carried into operation on a large scale by the metallurgist at the Mint, it was not found to answer, and Mr. Warrington was again applied to. The gold had been melted in the usual black-lead or plumbago crucibles, the carbon of which had combined with the oxygen, and thus prevented the proper action of the oxyd of copper on the antimony. On the substitution of clay crucibles for those of black-lead, the process was found to be very efficacious, and the difficulty was removed. Mr. Warrington having observed in the course of his paper that there was some difficulty in accounting for the presence of the antimony, one of the members stated that, when at the Australian gold fields, he noticed large quantities of almost pure antimony in veins close to the quartz whence the gold was obtained, therefore there could be but little doubt how the gold became deteriorated. In papers read by other members of the society, they stated, as the result of experiments on a large scale, that gold is to a certain extent volatilized during the progress of cupellation, a small proportion of the metal having been found deposited in the flues of the furnace; and that gold is also, in a slight degree, soluble in pure nitric or nitrous acids. In the course of the discussion, after the reading of these papers, one gentleman mentioned that he was in Australia soon after the introduction of the quartz-crushing machines, when he observed great difference in the amount of the produce of the amalgamated gold on different days; and on examining the ‘tailings,’ or refuse of the mill, he perceived a quantity of gold had passed through without amalgamating with the quicksilver. This led him at once to suspect that the surface of the gold was covered with some unctuous substance that obstructed its combination with the mercury, and on treating it with an alkali he found that the metals then readily combined. He consequently recommended the mixture of wood ashes with the powdered quartz, and by that means the daily produce of gold had been equalized and greatly increased. On afterwards subjecting

the tailings to the same process, more gold was abstracted from the refuse than had been obtained when the powdered quartz was first operated on.”—(*Scientific American*.)

“*A Composition named Zeiodelite, a kind of Paste which becomes as hard as Stone, is unchangeable by the Air, and being proof against the action of Acids, may replace Lead and other substances for various uses.* By JOSEPH SIMON; 1859.—Zeiodelite is made by mixing together 19 lbs. of sulphur and 42 lbs. of pulverized stoneware and glass. The mixture is exposed to a gentle heat, which melts the sulphur, and then the mass is stirred until it becomes thoroughly homogeneous, when it is run into suitable moulds, and allowed to cool. This preparation is proof against acids in general, whatever their degree of concentration, and will last an indefinite time. It melts about 120° Centigrade, and may be re-employed without loss of any of its qualities, whenever it is desirable to change the form of an apparatus, by melting at a gentle heat, and operating as with asphalte. At 110° Centigrade it becomes as hard as stone, and therefore preserves its solidity in boiling water. Slabs of zeiodelite may be joined by introducing between them some of the paste heated to 200° Centigrade, which will melt the edges of the slabs, and when the whole becomes cold it will present one uniform piece. Chambers lined with zeiodelite in place of lead, the inventor says, will enable manufacturers to produce acids free from nitrate and sulphate of lead. The cost will be only one-fifth the price of lead. The compound is also said to be superior to hydraulic lime for uniting stone, and resisting the action of water.”—(*Chemical News*, March 10.)

“*A Case of severing the Orbicularis Oris Muscle, in Dental Surgery.* By WM. C. KELLUM, Dentist, San Francisco.—Mrs. J., a lady of forty-five years of age, called upon me to supply her with complete rateliers. She had her mouth so badly contracted from a typhletic cicatrix received some years before, as to prevent the possibility of taking an impression. She had received some advice before calling on me, which rendered her somewhat doubtful of the success of the operation. I was sanguine, however, and took her to Dr. Cooper, who entirely severed the orbicularis oris muscle, by cutting directly outward on each side, from the point at which the commissure of the lips had formerly been, but which was changed by the sloughing and contraction consequent on the pytalism.

“The result has been, as I anticipated, entirely successful. The mouth, though over an inch larger than before the operation, is now quite well-shaped. The divided portions of the lips were kept from healing by means of an instrument invented for the purpose, which I have called a *stretcher*. The rapidity with which the labial attachments of the zygomaticus major and minor, as well as that of the levator anguli oris muscle, were changed to correspond to the condition of the commissure of the lips, struck me very forcibly.

“The wound made with the knife is now about healed, so that I can go to work as a dentist in good earnest, being allowed all the space which the surgeon thought belonged to one of my profession, in a lady’s mouth.

“This case, though presenting no striking features, is still thought worth reporting, as it is one rarely performed.”—(*San Francisco Med. Press*.)

MISCELLANY.

IN our last we gave a short extract from a lecture on rickets, by Dr. Jenner, in order to exhibit the intimate relationship between dentition and the condition of the general system, as well as the special diatheses noted therein. In further elucidation of this subject, we insert the following from the same writer, who observes that among "the most constant and striking anatomical lesions in rickets, are the arrest of growth, not only of the bones, but of all the parts directly related anatomically and physiologically to the bones—*i.e.* of the muscles, vessels, nerves, and teeth. * * * * *

"When speaking of the deformity of the head in rickets, I mentioned one important consequence of the arrest of growth, viz., the late closure of the anterior fontanelle. There is another most important consequence of the arrest of growth in rickets, which, though it is well known, does not appear to me to exert sufficient influence on practice—I mean the late period at which rickety children cut their teeth.

"Healthy children commence teething pretty constantly between the seventh and eighth month, and cut the last of the first set of teeth between the twenty-fourth and twenty-fifth month. As a rule, children brought up by hand, supposing them not to be rickety, and children the subjects of tuberculosis, cut their teeth early.

"If a child pass over the ninth month without teeth, you should carefully inquire for the cause. It may be that an acute illness has retarded dentition. It may be, but this is very rare, that there is some condition of the gum which interferes with the advance of the teeth. It may be, and this is infinitely the most common cause of late dentition, that the child is rickety; fail not then, when called to a child in whom the teeth are late in appearing, to look if it be rickety, for if you do fail to look for rickets, you will most likely attribute to the irritation of teething symptoms which are the consequence of the rickety diathesis; the late dentition in rickets being itself merely a symptom of the general disorder. The rickety deformities may be very trifling, and yet the teeth considerably retarded in their development."

DR. EISENMAN, of Wurtzburg, highly extols (*Bull. de Ther. and Med. Times and Gaz.*, April 14,) a combination of colchicum wine and tincture of opium for the curative treatment of the different forms of rheumatism. He considers it of "great efficacy in cases of *rheumatic neuralgia*, especially in facial or intercostal, in sciatica and odontalgia. But the case must be recent, or it will be of no avail. In *odontalgia* the results are truly remarkable, a single dose rapidly dissipating the pain. The distinction between the rheumatic form of odontalgia and that which arises from carious teeth, is exhibited by the different effects of the colchicum. For the relief of odontalgia arising from carious teeth, the author, after having cleaned out the cavity of the tooth, introduces into it a morsel of nitrate of silver as large as a pin's head. In about a minute the moisture of the mouth dissolves this, and the mouth is then to be gargled with cold water, and the pain disappears. He has employed this plan of relieving the pain of carious teeth for the last twenty years, and he has seldom known it fail, even after the ineffectual trial of various other measures. It causes no pain, and it retards the progress of the caries."

In the course of a lecture upon paralysis of the lower extremities dependent upon sympathetic irritation, (*Lancet*, April 28,) Dr. E. B. SEQUARD thus notices those cases of paraplegia due to teething. "I have seen a very interesting case of this kind in which the paraplegia, which had appeared at the very beginning of the second dentition, in a boy five years old, increased and decreased alternately at the time of, and after, the cutting of each of three molars. In that case there was a slight contraction in some of the paralyzed muscles. Simple hygienic means, shampooing, galvanism, and a decoction of cinchona bark, were employed with success. The child was cured two months after the cutting of all his teeth (except the so-called 'wisdom teeth.')

Underwood has seen a case of paraplegia appearing after every cutting of a tooth. Fliess and others have already shown the relation between teething and paraplegia, and it would not be difficult to prove that those very able writers (especially Dr. Kennedy and Dr. West) who think that it is chiefly the condition of the bowels in teething that causes paralysis, have been misled by the fact that very frequently enteritis precedes paralysis. Usually, enteritis in teething, as well shown by Dr. Cain and Dr. Fraser Campbell, is produced by a reflex action, and paralysis seems to be generated in the same way."

Respecting the general etiology and treatment of this form of sympathetic paraplegia, Dr. S. observes in conclusion: "The above cases, and many others which we could mention, show that the production of paraplegia may be associated with irritations starting from very different parts—such as most of the viscera, the skin, the mucous membranes, and the trunks of nerves. In all these cases we find that paraplegia has followed the outside irritation, which we consider as its cause, and that the cure of this paralysis has been more or less quickly obtained after the supposed outside cause had been suppressed. Besides, in many of these cases we find the supposed effect increasing or decreasing gradually, in correspondence with the outside irritation, and in several instances we find that even without treatment the paralysis disappeared after the cessation of its supposed cause; while, as a general rule, no treatment of the paraplegia seemed to have the least influence so long as the outside irritation was not alleviated, or had not entirely ceased. In some cases we find that paraplegia appears and disappears altogether, twice, or many more times, in correspondence with the renewed production and cessation of the outside irritation. Can there be more decisive proofs that it is the outside irritation starting from some sensitive nerves in various parts of the body which produces the paraplegia?"

The Paris correspondent of the *Lancet* relates the following singular case of salivary fistula: "I may mention a case which has been for some months under the treatment of Professor Nélaton, on account of its rare occurrence, and as it is nowhere mentioned in books. A woman, of the age of about thirty, presented herself at the Clinique with a congenital salivary fistula. The opening was situated on the left side of the neck, four millimetres below the hyoid bone. A probe being introduced, was found to communicate with the sublingual gland. During the process of mastication, the saliva came out in drops, (as it does from the parotid or submaxillary gland,) but in the continuous form, and became viscid on cooling. Professor Nélaton first established a communication between the sublingual gland in the interior of the mouth by means of a seton, and next obliterated the fistulous opening by chloride of zinc."

MR. S. H. HARDING reports in the *Lancet*, (April 21,) a case of accidental swallowing of artificial teeth, which, fortunately, passed through the alimentary canal without serious inconvenience to the patient. The following are the details of the case: "Mrs. ——— swallowed a gold plate on which were three or four teeth, fixed with clasps at each end of the plate for attachment to the adjoining teeth. One of the clasps had become bent, and formed a sharp point. Some hours afterwards she complained of severe pain in the stomach, which seemed very much distended. Dr. Julius made her lie on her right side, and keep quiet. After the lapse of some hours the pain suddenly left her, and her expression was, that 'it went off with a jerk and a pop.' She felt nothing more until about twenty-four hours afterwards, when she suffered severe pain in the caput coli, which persisted for some hours, and then passed off in a similar manner. The next morning, Dr. Julius was hurriedly sent for, and on arriving found her in great agony, with a constant desire to pass urine and relieve the bowels. Upon passing a catheter into the rectum, he distinctly felt a hard metallic substance firmly fixed across the bowel, about two inches above the sphincter. He now introduced a three-bladed speculum, and dilated the bowel as much as could be borne, and, with the aid of two pair of forceps, he brought down the sharp end of the plate, and then extracted it, with very slight injury to the mucous membrane. In a few days she was quite well; and, as Dr. Julius observes, after a good washing, used the same teeth again to assist in recruiting her strength after the painful ordeal she had passed through. The teeth swallowed were two central and two lateral incisors, with the clasp extending to the first molar. One of them had become displaced, and she neglected to have it adjusted. The consequence was they became loose, and were suddenly swallowed, clasp and all." In all accidents of this kind the patient should partake freely of mush and milk, and such other articles of aliment as will form large and consistent stools, in order to sheath the bowels and promote the more easy passage of the foreign body through the intestinal canal.

The *Quarterly Jour. of Microscopical Science* presents the following, upon the authority of J. W. LAWRENCE, of Peterborough, as a new cement for mounting objects for the microscope, either in dry cells or in fluid: "I have found that great rapidity is obtained in mounting objects in a cement made with asphaltum dissolved in *Benzine* or *Benzole* instead of turpentine, because it dries so quickly that a great many more objects can be mounted and finished in a day with it than with any other cement. I finish it off with a coat of asphalt in turpentine, to give it a smooth appearance. It should be kept, like all cements for the mounting of microscopic objects, in a capped bottle, so that the brush is always soft and ready for use. Benzole is also the most convenient solvent for removing superfluous balsam from the outside of the glass covers under which objects are mounted in that medium." The editor observes that the addition of a little gold size to the solution of asphaltum in benzine will be found useful in rendering it less brittle.

J. A. McCLELLAND reports, in the *Louisville Monthly Med. News* for April, a case of severe and protracted secondary alveolar hæmorrhage following the extraction of a left inferior molar tooth. It was, however, checked without difficulty, and at once, by the tincture of the sesquichloride of iron introduced into the socket of each fang by means of cotton saturated with it.

Championnière's Journal says, that "in the case of dissection-wounds, Mr. Bauchet has ever found the following precautions successful: Bathe the finger carefully and pour a stream of water on the wound, and at the same time, by gentle pressure, induce a slight discharge of blood, sucking the part, and afterwards protecting it by the aid of strips of diachylon. Mr. Bauchet absolutely rejects cauterization with nitrate of silver, which alone may occasion inflammation of the lymphatics." Nevertheless, it is always wise to resort to the use of such agents as chlorine, iodine, or bromine, or some of their preparations, in order to decompose and destroy the poison and prevent infection.

The following method for cutting glass is given in the *Photographic News*, by ALEX. TAYLOR: "In treating of glass, I may give you another way of cutting bottles, shades, or any glass vessel, the neat thing you wish, and that is, to get a rod of iron heated to redness, and having filled your vessel the exact height you wish it to be cut, with oil of any kind, you proceed to very gradually dip the red-hot iron into the oil, which, heating all along the surface, suddenly the glass chips and cracks right round, when you can lift off the upper portion clean by the surface of the oil. This never fails, and many a couple of serviceable bell glasses have I made in this way from a six-pound confection bottle."

The Proceedings of the *Acad. of Nat. Sciences of Philadelphia* for April contains an interesting account, by DR. JOS. WILSON, U. S. N., of a female whelp of a small ocelet, or "tiger-cat," obtained in Realejo, Nicaragua. She was domesticated for several months and became quite a pet on board of the U. S. Ship *Vandalia*. She was very tame and quite expert in catching rats, as well as active in hunting sea-birds and flying-fish, in the pursuit of which last she was supposed to have lost her life by falling overboard, as she disappeared one moonlight night after being thus engaged.

The following slight notice of some of her habits and interesting episode in her history, in which she became the subject of a dental operation, may not be without instruction:—

"She was very fond of licking the men about the face and gently pinching their ears in her teeth; and although she frequently engaged in this disagreeable amusement, she never wounded any one in the least while thus occupied. In cold weather she was very fond of getting between blankets, and required but the very slightest encouragement to crawl into the very middle of a bed and roll herself up in this position for her morning nap. On one occasion it was noticed that she had a large tumor on the side of her face, and a large abscess formed. It was at first supposed that she had hurt her face in playing with a catfish; some one, however, noticed that it proceeded from an irregularity in shedding one of the milk teeth. One of the officers, of uncommon zeal in such matters, proposed to hold her while the obnoxious tooth was extracted. I determined to gratify him in this matter, and, to the astonishment of all, he held Miss Tiger on his lap while I extracted the obnoxious tooth with a pair of forceps, and neither of us were scratched during the operation."

At a meeting of the same Acad. (*vide Proc. for March*), "Mr. Slack remarked that the two teeth of the *Mosasaurus missouriensis*, presented by him this evening, had been procured for him from the marl pits of Mr. Coward, about two miles west of Freehold, N. J., through the exertions of Mr. Hopper, of Freehold, N. J., a gentleman to whom the

Academy is largely indebted for cretaceous fossils. This is the eleventh specimen of the *Mosasaurus missouriensis* identified by Mr. Slack, found within a radius of ten miles from Monmouth Court House."

In the course of an article on stomatitis materna, in the April number of the *Chicago Med. Jour.*, DR. L. S. ELLIS thus alludes to the concomitant disease of the teeth:—

"Rapid decay of the teeth is also apt to occur in this train of symptoms; a circumstance I have always referred to the acid secretion acting on the teeth. Herein is the explanation of so many American women losing their teeth, especially in the first lactation. This seems to me to be as much entitled to a place in the category of blood diseases as stomatitis materna. If the above described condition of the stomach continues unabated, the decay of the teeth is almost sure to occur, more sure than the disease under consideration."

An equal weight of transparent glue and very strong vinegar, with one quart of alcohol and a very small quantity of alum, dissolved by means of a water-bath, is said, by M. BËTTGER, to make an excellent liquid-glue, very useful for uniting fragments of horn, pearl, shell, bone, etc.

The *Amer. Jour. of Pharm.* gives, upon the authority of the *Repert. de Pharm.*, the following easy means of silvering copper and brass surfaces: "M. BOUDIER recommends a powder composed of twelve parts of cyanide of potassium, six parts of nitrate of silver, and thirty parts of prepared chalk. Rub the surface to be silvered with a moist rag which has been dipped in this powder, and a deposition of silver takes place which is strongly adherent, and may be used advantageously to apply to some utensils before bringing them in contact with acid fruits."

The following is recommended, in the *Chemist and Druggist*, as a good temporary filling for decayed teeth: "Gutta-percha (white) made quite hot, and powdered asbestos incorporated with it, as much as it will take up; roll out flat on a warm slab, cut into small squares. When used dip the cement in hot water till soft—the cavity well dried—place it in quickly, and smooth with a hot tool."

A writer in the same gives the following method for preparing spongy platinum: "When sal ammoniac is added to a solution of platinum in aqua-regia, a precipitate consisting of the double chloride of platinum and ammonium is formed. If this double salt be heated to redness, its volatile constituents escape into the atmosphere and leave the platinum behind in porous and slightly coherent masses—as spongy platinum in fact."

The *Jour. of the Franklin Inst.* says that "M. PELOUZE presented to the Academy of Sciences at Paris, in the name of M. Jacobi, medals of different sizes struck in alloys of platinum and iridium, fused at the laboratory of the *Ecole Normale*, by the process of MM. Deville and Debray. The alloys contained respectively twenty, ten, and five per cent. of iridium. According to the declaration of M. Jacobi, they were rolled cold and without annealing, with great ease, and presenting the characters of the most ductile metals. Under the press they take a polish equal to that of coins; and the alloys rich in iridium showed a hardness rather greater than that of gold of 0.916. This hardness is proportioned to the quantity of iridium, as is also the resistance of the alloy to aqua-regia, which becomes almost perfect when the quantity of iridium reaches twenty per cent."

The same journal states, on the authority of the *Cosmos*, that "by incorporating into melted steel from two to five per cent. of Tungsten, there is obtained a steel which is very dense, hard, and strong—admirably fitted for the manufacture of tools. The instruments made with this Tungsten steel are said to keep their temper four times as long as usual."

The *Scientific American* gives the following method for coating copper with gold:—"Take a solution of nitro-muriate of gold (gold dissolved in a mixture of aqua fortis and muriatic acid) and add to a gill of it a pint of ether or alcohol, then immerse your copper chain in it for about 15 minutes, when it will be coated with a film of gold. The copper must be perfectly clean and free from oxyd, grease, or dirt, or it will not take on the gold."

It also says, "A cement for attaching metal to glass is made as follows:—Take 2 ounces of a thick solution of glue and mix it with 1 ounce of linseed oil varnish, and $\frac{1}{2}$ ounce of pure turpentine; the whole are then boiled together in a close vessel. The two bodies should be clamped and held together for about two days after they are united, to allow the cement to become dry. The clamps may then be removed."

The *American Journal of Science and Arts* says that, "According to FABIAN, (*Dingler's Polytechnic Journal*), the chemical lecturer will find aluminum leaf to be well adapted, for exhibiting the characteristic properties of the metal. It dissolves, for example, with surprising rapidity in a solution of caustic alkali."

"It is not of unfrequent occurrence, says Mr. BERGOUHNIUX, in the *Art Dentaire*," (*Championnière's Jour. of Med. and Surg.*, April,) "to observe in nervous women, and principally in chloro-anæmic girls, toothache recurring toward evening with extreme violence, persisting all night without intermission, and utterly depriving the patient of sleep. When caries exists, the tooth is filled or extracted; but this does not always dispel the pain. * * * * In one of those cases in which the neuralgia had its seat in both dental arches, Mr. Bergouhnioux took half a glass of tepid water and poured it into a few drops of chloroform; he stirred up the mixture, allowed the excess of chloroform to fall to the bottom of the glass, and then ordered the patient to gargle with it. The remedy was no sooner applied than it succeeded marvelously; the pain ceased as if by magic. After a few minutes lull, however, it returned. The gargle was resumed: the calm that ensued lasted more than a quarter of an hour. After the third attempt, the patient fell asleep without awaking again till the following morning. Mr. Bergouhnioux asserts that this remedy has never once failed him."

BIBLIOGRAPHICAL.

Georgia Medical and Surgical Encyclopedia. Edited by H. N. HOLIFIELD, M.D., and T. W. NEWCOME, M.D. This is a new monthly octavo of 48 pages of original and selected matter, published in Sandersville, Ga., at \$2.00 per annum in advance. Its typography is good, its contents judicious and practical, and its general tone healthy and vigorous. We wish it success, and exchange with pleasure.

The San Francisco Medical Press. Edited by E. S. COOPER, A.M., M.D. We have received the second number of this spirited periodical. It contains original articles of interest from both medical and dental practitioners, and promises to aid materially in the advancement of medical science. It is published quarterly in San Francisco, Cal., at \$2.00 per annum in advance.

THE
DENTAL COSMOS.
NEW SERIES.

VOL. I.

PHILADELPHIA, JULY, 1860.

No. 12.

ORIGINAL COMMUNICATIONS.

PUBLISHERS' NOTICE.

THIS number closes the first volume of the DENTAL COSMOS. We commenced its publication with the determination to make it the leading exponent of Dental Science and Art, and from the abundant assurances of gratification and approval which we have received from a very large number of those well qualified to judge, both in and out of the profession, believe that we have succeeded to a very great extent.

Our journal has already attained such a position, that we feel justified in claiming it to be the representative of the Science and Art of Dentistry. No effort will be spared to maintain and increase its present practical efficiency, and to render it a true exponent of everything of importance connected with the theory or practice of Dentistry. We hope thus to make it indispensable to every one engaged in the special department of Dentistry, as well as to many who are more exclusively interested in general medicine.

The plan of separate departments upon which it was established, and has been conducted, has worked so well, that it will be continued.

The unprecedented success of this journal has established two facts to our entire satisfaction, viz.: First, that a good monthly dental periodical is required, and will be sustained; and secondly, that for its proper support, the cash system is absolutely necessary. We shall therefore adhere to the system of *cash payments in advance*; for, apart from the fact that neither publishers nor editors, any more than printers, dental practitioners, or workers in any other department of life, can be expected to labor without adequate compensation, the interests of subscribers as well as the profession in general are advanced by this practical encouragement to increased effort in promoting the greater usefulness of the journal.

In order to secure an extensive circulation, the annual subscription price is put at such a low figure, that it cannot prove a tax to any one, and is really insignificant when compared with the advantages to be de-

rived from the constant supply of reliable information upon all the most important matters relating to the theory and practice of Dentistry—information as essential to the success of the practitioner as a proper supply of material for professional manipulations.

During the progress of the volume, we have sent copies occasionally to others than subscribers, in order to afford them an opportunity of ascertaining its character and value. We shall not deem it necessary to pursue this plan further, and therefore invite all who desire to receive it, to send their names and subscription price at once. As the size of the edition will depend upon the number of subscriptions received, a *prompt* response is desired. We wish it to be understood that the DENTAL COSMOS will be sent regularly to those only who pay in advance.

We earnestly invite the support and co-operation of all who recognize in this journal a means of improvement to themselves, or of elevation to the profession in general.

JONES & WHITE.

PRACTICAL HINTS.

BY J. D. WHITE.

PLUGGING teeth over slightly exposed nerves, or where there is only a thin plate of dentine covering them, seems at present, from what we see in the journals and discussions before societies, to be quite a settled practice with many in the profession. For more than twenty years we have regarded the practice as unsound, and for as long a time have condemned it, and exerted all our care to avoid plugging over a slight exposure or where the plate of dentine was not thick enough to sustain the life of that portion of the pulp that it was destined to protect. The *liquor sanguinis* supports the vitality of dentine, and when the greater part of the dentine is supplied over any portion of the pulp by a foreign substance, such as a plug of any metal, a *stagnation* takes place between this plug and the pulp, and the thin portion of dentine becomes morbid from an undue amount of nutritive fluid poured into it, the circulation of which has been arrested by the plug which may be less permeable than the dentine. If there be a considerable partition of dentine intervening, a pulp may *live* without any signs of trouble to the patient, and the slow and normal process of the receding of the pulp, as age advances, may take place by the filling up of the pulp cavity, and the case may be a success for the life of the patient. But if this plate be *too thin*, and by this too thin we mean that according to the capacity of the pulp and the constitution of the patient to successfully sustain morbid action, the case will fail. The stagnated fluids in this portion of dentine ends in decomposing it, leaving an opening between the plug and the pulp or causing a loss of its vitality; in either case inflammation of the pulp is the consequence, and the plug

must be removed, and the case treated as if it had been exposed before plugging. We never get into any trouble from this near approach to a pulp, unless it be where we err in our judgment as to the capacity of the pulp to live with a small amount of its natural protection; but we do not destroy a pulp unless we can decide that there is an actual exposure, even though the success of the case may be doubtful; we prefer to give the patient the advantage of that doubt.

We frequently treat such cases with creosote or tannic acid and sulph. morphia, to reduce the action of the pulp for a time after the tooth is plugged, and to compensate for the irritating influences of the jarring the tooth undergoes by the operation; but we are not always successful under what we regard at the time as favorable circumstances. The function of the pulp is to supply nutrition to the crown of the tooth above the gum, as the anatomical arrangement of the tubuli indicate, and the constituents of the circulating fluids to the crown of a tooth is equal to the wants of that substance, as is true of any other tissue of the body; and how our modern physiologists provoke the pulp to produce more of one constituent than another, seems to us to be too absurd for serious consideration. We have always been taught and believed that to increase the action of an organ or a tissue, that an excess of the fluids was the result of that increased action instead of the solids. How to approach a pulp of a tooth by *therapeutic agents*, so as to procure a rapid deposit of dentine or bony matter, and reduce the vascular and nervous tissue of the pulp at the same time, is beyond our comprehension. If the earthy constituents are increased, the animal constituents and fluids are increased also, and, as far as we can judge in treating teeth, where the pulp is irritated or increased in its action, this is true. "*Ubi irritatio ibi fluxus*" is, we believe, sound doctrine. Upon removing a plug for pain in a tooth, when the pulp is living or a recent case of irritation, a small portion of serum will be found between the plug and the pulp, and if it be a case where intense pain has been experienced, it frequently happens that pus and blood will also be found, the accumulation of which will have compressed the pulp so that the orifice of exposure can be entered without touching the pulp, but in a few minutes after the discharge of the pus or serum, the pulp will regain its normal size and fill its cavity, and the pain will cease, which had been caused by the pressure; hence the relief that is obtained by giving "vent," as it is termed.

(To be continued.)

AMERICAN DENTAL ASSOCIATION.

BY GEO. T. BARKER, D.D.S.

A WRITER, under the initials E. T., in the June number of the *Dental Register*, in reviewing the plan of organization submitted for the proposed Association, comments upon the action of the committee in dis-

charging their duty, in a manner which, to those unfamiliar with the entire subject, is calculated to place them in an invidious position before the profession.

In presenting their report, the committee offered a preamble, of which the following is an extract:—

“A due regard for our own reputation, as well as a just appreciation of the rights of others, makes it obligatory that we should *state, and desire* the same to be *placed upon record*, that the plan of organization we submit to you is based upon a constitution that was framed by some of the brightest and best minds of our country—we refer to the American Medical Association.”

When taking into consideration the fact that the above honest and candid statement was made with the desire that the committee should be relieved from the slightest imputation of appropriating the labors of others without making a due acknowledgment of the same, one might have supposed that such candor would have excited a feeling of respect rather than have induced the unjust censure contained in the following extract from E. T.'s remarks:—

“When such a committee has more labor assigned to it than can be properly performed in the stipulated time, it becomes necessary to slight the work or to *copy* the plan of some other society, unless one of its members has a ‘cut-and-dried’ article ready for presentation, which would be a fortunate arrangement, if these ever-willing *cut-and-dry* souls were always as competent as they fancy themselves.”

The plan presented by the committee, though *based* upon that of the American Medical Association, is not a copy of that instrument, but a *condensation* and *modification*, to a great extent, of that valuable document; and, furthermore, in the part essentially making it a constitution for a dental organization, though no claim to such was advanced by the committee, it is truly and emphatically original.

No attempt was made to force the plan upon the Convention, for the original resolution presented, at the first meeting, was as follows:—

“*Resolved*, That a committee of *one member from each delegation present* be appointed to draft a constitution and submit the same to this Convention, its final adoption to be left until the next annual meeting.”

With regard to “cut-and-dry” constitutions, I can say, as the result of positive personal knowledge, that so far as the mere mechanical operation of writing out the document was concerned, it *was performed at Niagara*, and that in the discharge of that duty, no attractions, however great, were sufficient to divert attention from it. Though drawn up there, the plan, it is true, was not the result of the hasty deliberations of the moment, but the calm reflection of a considerable period previous to presentation.

The objections urged by E. T. to the proposed plan, I shall not attempt to refute, as he has an undoubted right to his own opinions, though it would seem in many of them, *wit* is more aimed at than honest

and serious opposition. What, I might ask, would be the value of a constitution that did not define the duties of officers and committees? And as every one who may be elected to a position in the Association may not be as familiar with "*parliamentary usage*" as E. T., they, as a natural consequence, must look to the constitution for instruction as to their duties, and would remark, that after an experience gained in several organizations, is convinced much loss is sustained by the neglect on the part of associations to define the duty of every officer fully and clearly in the constitution.

I will conclude with a reference to the following quotation: "Our brethren across the water sometimes allude to American verbosity. Shall we afford them so strong an occasion to do so again?" This charge falls to the ground when it is known that the proposed plan is half the length of the constitution of the American Medical Association, and one-third that of the Odontological Society of London. Though there are portions of the proposed plan of organization open to objection, the acknowledgments made by the committee, that they could not but believe there were imperfections which the deliberations of the Convention would correct, should at least have preserved them from so ungenerous an attack.

PRACTICAL DENTISTRY.

BY J. FOSTER FLAGG, D.D.S.

THE few remarks which I am about presenting in relation to this subject, I propose shall be in the form of an embodiment of reflections resulting from the perusal of a communication under the same title in the April number of the *Am. Journ. of Dental Science*, from the pen of one of the best theoretically educated dentists in our country, a gentleman whose acquirements are of that order which commands the respect of his equals and the admiration of his inferiors, and whose sentiments are, from this fact, entitled to more than ordinary consideration as opinions of much weight in relation to matters with which, notwithstanding the much talked of advancement of our profession, there are comparatively few members more than tolerably conversant. That one so well informed, as is the author of that paper, should admit the value of that general knowledge of "anatomy, physiology, pathology, and the nature and application of remedies," upon the *absolute necessity* of which the intelligent practitioner of dentistry bases the claim of his avocation to rank as a "profession," is nothing more than would have been expected, but that the same gentleman should regard for a moment the possibility of increased dental enlightenment tending to deteriorate the practical manipulations which are to go hand in hand with it, seems to me a view of the subject equally novel and untenable; on the contrary, would it not be more reasonable to

suppose that the educated would appreciate *more fully* the responsibility resting upon them, and the necessity for thorough operation, than the comparatively ignorant? Arguing by analogy, is it not so? Who are the surgeons that suggest and perform the most admirable operations? Surely not those whose ideas of surgery lean toward the flesh-carving view of the question. Who are the most eminent and successful obstetricians? Surely not those who, like the "practical" tooth-puller, regard as the most important acquirement of their specialty, admirable manipulation of the forceps. And lastly, who are those in our own ranks that deservedly take position as skillful, careful, and finished operators? In reply, I would say, name me those gentlemen who are prominent in the cause of dental education; who are laboring earnestly by day and by night for the advancement of themselves and others; who are striving diligently to give evidence of the practical utility of the *scientific* practice of the art; who have by no "sickly struggle," but by the most hearty and combined effort, induced not only the recipients of its means of amelioration from suffering to give daily testimony of their appreciation of the great change which has been wrought, but given the learned among general practitioners cause for astonishment, and, I would hope, gratification, at the fairly leaping progress which it has made "during the last twenty years." Name me those gentlemen, I say, and with but very, very few exceptions, I will name you those whose works speak for them, and who, in point of elegance and finished durability of manipulation, are as much in advance of the rough but solid work of those whom we delight to honor as the ornaments of by-gone days as they are their superiors in scientific acquirements. That there are those who are eminently intelligent and capable of attaining but mediocrity in operating, I admit, of course; and that there are those whose operations must rank as "first class" who cannot speak their own language correctly, is also true; but I must say, that so far as my own observation has extended, I fully agree with the principle laid down by that astute observer of human nature, "the autocrat," that all else being equal, the chances are in favor of the intelligent, educated, scientific dentist.

PHILADELPHIA, June, 1860.

EFFECTS OF DISEASE ON THE TEETH.

BY ABR. ROBERTSON, D.D.S., M.D.

[CONCLUDED.]

The general rule, then, is that medicines do not injure the teeth—the rare exceptions proving the rule that they may sometimes do so; and the just inference is, that where this may be the case, care should be used so to administer such medicines as most effectually to prevent it.

The question now recurs, why do teeth decay more frequently and more rapidly during sickness than at other times?

For the better elucidation of this question, it becomes necessary to inquire, what is sickness? I here use this word as a general term for all kinds of diseases. What are its causes? How do these causes act to produce it, and what are some of its effects?

For our present purpose it may be enough to say, that disease or sickness is any disturbance or interruption of all or any of the functions of the living body.

The principal recognized causes of these interruptions and changes of the functions which constitute disease, are indigestible and all the various unwholesome and improper articles of food; malaria, appreciable or unappreciable; sudden changes of temperature; great changes of the state of the atmosphere, electrical and hygrometrical; various emotions of the mind, as grief, fear, anger, and the like; and various viruses and other poisons.

They act upon the system chiefly, if not entirely, in two ways: either by directly mixing with and altering the composition of the blood, as where virus is directly introduced into that fluid; or by some shock or irritation of the nervous system.

The most uniformly observable manner, if not an invariable mode in which all these agencies affect the functions of the living body, is by altering the various secretions. The sweat, the urine, the bile, the gastric and pancreatic fluids, the saliva and the milk, some or all of them have been found more or less altered in most diseases; and the blood, from which all the secretions are derived, is supposed by many always to be changed in disease. It is at least evident that shocks to the nervous system, from purely mental causes, sometimes most wonderfully affect the secretions. Repeated instances have been recorded where a fit of anger has produced such a change in the milk of mothers as to cause the death of their infants in a very short time after partaking of it. I have seen a most obstinate and intractable diarrhoea produced by sudden and excessive grief, causing primarily great acidity of the stomach, and this acid acting most markedly and unmistakably as an irritant on the bowels. But as it is the saliva only—including, of course, the secretions of the salivary glands and buccal mucous membranes—that comes in contact with the teeth, or at most, that remains in contact with them, we shall confine our present inquiries to the changes that have been observed in that secretion; and after remarking that for many years I have observed that confirmed dyspeptics almost uniformly have bad teeth, and that their teeth are decayed in so peculiar a manner that I can almost unvaryingly diagnose dyspepsia by an examination of the teeth—(to this I will refer again before closing)—I shall, therefore, quote somewhat freely what has been recorded by others of the changes produced in that secretion by various diseases.

Müller's Elements of Physiology, page 362, says: "The testimony of many physiologists is, that the saliva is alkaline, but that it may vary from alkaline to acid under many and trifling circumstances."

Lehmann's Chemical Physiology says: "The secretion of the oral mucous membrane has an alkaline reaction. Human mixed saliva" (secretion of the salivary glands and buccal mucous membrane) "in an abnormal state has an acid reaction, and commonly in a fasting state. It is most commonly found acid in irritations of the primæ viæ."

Carpenter's Physiology, fifth American edition, page 412, says: "The reaction of the saliva is usually alkaline, that of the principal gland being always so in health; while that of the buccal mucous membrane is acid; so that when the former predominates, as is always the case when food is being masticated and digested, the saliva of the mouth is alkaline, while when the latter is more abundant, as is often the case during the interval of digestion, at the slow rate at which the salivary glandulæ then pour forth their product, the buccal saliva is frequently acid."

Simon's Chemistry of Man says, page 295, of human saliva: "When perfectly normal its reaction is alkaline;" also, page 301, *ibid.*: "morbid saliva sometimes contains free acids; this is most commonly lactic acid, but in some cases acetic acid is likewise present. I have frequently found acid in acute rheumatism and in cases of salivation. According to Donnè the saliva has an acid reaction in all cases of irritation and inflammation of the stomach, in pleuritis, encephalitis, intermittent fever, acute rheumatism, uterine affections, and amenorrhœa. Brugatelli detected oxalic acid in the saliva of a phthisical patient."

Draper's Physiology says, page 44, that "the saliva is alkaline; but in morbid conditions an acid reaction is by no means infrequent; it has commonly been observed in intestinal inflammation, acute rheumatism, intermittent fevers."

Thus the testimony of physiologists is unanimous and conclusive that the saliva, under various circumstances, and in many if not most diseases, is changed from its normal alkaline to an acid reaction. Some of them state, as we have seen, that the saliva is usually acid during fasting. This condition usually occurs, to a very great extent, in most cases of sickness of such severity as to require continued active medication.

While, then, the patient is sick enough to require medical treatment, whether from the direct effect of the disease in altering the secretions, or from the fasting consequent upon the sickness producing that effect, or both, his teeth are constantly bathed in almost the only kind of article that has, or can have, any deleterious effect upon them.

Although this acidity may be but slight in degree, it is frequently long continued and constant, and therefore produces and must produce serious effects; and to my mind, both from theory and long-continued observation, is satisfactory and conclusive cause for the excessive ravages of caries of the teeth during sickness.

But how, I may be asked, does it especially manifest its effects?

Let us take as an example a case of dyspepsia already alluded to, especially as the effects here are usually more distinctly marked than in any other kind of disease. For here the acidity of the oral secretions is generally most excessive; and, besides this, such patients are peculiarly liable to great acidity of the gastric secretions, and this they frequently regurgitate into the mouth, and often so strongly acid as to produce at the time a very sensible and disagreeable effect upon the teeth—or what is popularly called “setting the teeth on edge.” In such cases, as might be expected, the teeth if perfectly formed and sound before, will be found most decayed about their necks, that is, just at the margins of the gums; for there in such cases this acid finds most ready lodgment, and is kept most constantly in contact with the tooth; and there, too, the enamel is thinnest, and, therefore, affords the least protection to the body of the tooth; and there, consequently, what enamel there is, will be found to be removed in large patches from many or even all of the teeth, and frequently softened and rendered friable to a much greater extent. If the teeth are already decayed, if even so slightly as to be unobserved by non-professional eyes, or if they have the least imperfections in their formation, as very frequently happens, a want of perfect union of the enamel at the lines of union of that substance from the different points of its deposit, though these unprotected interstices may be ever so small, even so slight as scarcely to show the finest dark-colored lines, they afford similar lodgment for this acid, and also afford a most favorable opportunity for its fullest and most ready action, and often producing, as every dentist must have seen, whether he recognized the cause or not, most disastrous consequences.

So, too, in all other diseases which change the saliva from an alkaline to an acid reaction, this effect is produced on the teeth in the same manner, and to an extent just in proportion as the saliva is rendered more or less acid, and to the length of time that such change continues.

From these facts, then, we may fairly deduce this rule: Most diseases injuriously affect the teeth; while the exception is that some may not.

What has been said thus far of the agency of diseases in causing decay of the teeth relates to adult life, or at least to their effects upon the teeth after they have erupted through the gums. But there is another time and manner in which diseases most seriously affect the teeth. This is during adolescence—while the teeth are in the state of formation within the gums, where no medicine can act directly upon or come in contact with them. Thus, any disease at this stage of life which interrupts or suspends the functions of nutrition may prevent them from receiving a sufficient supply of the appropriate materials for their full and perfect development. From this cause I have seen a whole set of teeth, otherwise well enough formed, with only the slightest traces of enamel upon them; and it is not very uncommon to see teeth where there is but very

little enamel on and near their cutting edges or grinding surfaces, where higher up on the crowns of the same teeth it is of normal quantity and quality, showing that the process of nutrition or of supply had from some cause, for a time, been suspended, and afterwards restored. This effect is also made manifest by the frequent observation that some of the teeth of the same individual may be found decayed or imperfect in their construction, while the others are sound and perfect—the decayed or imperfect ones and the sound being in pairs, and of the same class, showing that the same cause that acted deleteriously on one, had the same action on the others that were in the same stage of their formative process. So true is this, that I have often been able to diagnose at what age of the individual a previous “fit of sickness” had taken place, without any previous knowledge of the facts, and by simply observing in what part of the mouth such decayed teeth were situated.

Having now shown that medicines, judiciously exhibited and properly administered, do not, and generally cannot injure the teeth, and that many if not most diseases do, and of necessity must injure them more or less, I cannot refrain from adding that the injudicious exhibition and improper administration of medicines, and more especially the drenching themselves with quack nostrums, to which our people are so strangely prone, as uniformly do and must produce ill effects on these organs. And so, too, and in the same manner, may the eating of candies, or of sugar, or of the very staff of life, bread, or the drinking of pure cold water; *i.e.* by the taking of them at such improper times, and in such improper quantities, and at such irregular intervals as to disturb the functions of the stomach and nervous system; thus injuring the health and changing the character of the secretions. Hence, a safe general rule in relation to quack nostrums is, that any time is an improper time, and any quantity is an improper quantity. And this is true at all stages of existence, from earliest youth to decrepit age. But medicines, when so administered as to secure the object for which they are given—the restoration of the secretions from an abnormal to their normal condition, the restoration of the body from disease to health—instead of injuring the teeth, protect them from injury.

EXTRACTING TEETH.

BY ABR. ROBERTSON, D.D.S., M.D.

I HAVE read the “Practical Hints,” in the DENTAL COSMOS, by DR. J. D. WHITE, from their commencement; generally concurring in them, frequently with instruction, and always with pleasure, till the last, which is that in the number for the present month, (June,) on extracting teeth. That is so entirely adverse to all my notions of correct practice, that I propose, with all due deference, briefly to pay it my best respects. And, first of

all, allow me to ask if, since we now have many hundreds of well educated, sensible men in our own country alone practicing dentistry, it is not rather too sweeping a declaration to make, as you do in the very first sentence of your late article, that "daily experience shows that there is very little sound judgment exercised in the operation of extracting teeth, especially in cases that apply for the operation in the alleviation of tooth-ache"?

It seems to me that it is; and although I have no doubt that a great many teeth are extracted that ought not to be extracted, yet I am not prepared to admit nor to believe that the whole profession of dentistry are a set of blockheads, or that when any one of its members dies all the light of the profession will go out.

Your second sentence, to meet my views of correct practice, should be amended so as to read thus: "When a patient applies for the extraction of a tooth, while suffering from pain, and we can relieve the case without removing the tooth," *and there is a reasonable hope that we can by proper treatment render the tooth useful*, "as a rule" we ought to "do so;" but if there is not such a hope, we ought at once, in the most careful and expeditious manner, to extract the tooth, unless some very extraordinary circumstances contravene—for tampering with an aching tooth, when there is no prospect of restoring it to usefulness, is but trifling with the comfort and the health of the patient. And this, it seems to me, is of vastly more importance, both physically and mentally, than the "moral influence" likely to be exerted by the judicious extraction of an aching tooth.

Slight causes, we well know, often develop most grave and intractable diseases, and therefore all causes of nervous irritation should be removed from the system as speedily as possible, and especially when the patient is of an irritable or nervous temperament.

Although I cannot believe that my learned brother J. D. W. would allow himself to be a party to deceive either child or adult, by telling them it would not hurt to extract a tooth—as might possibly be inferred by an expression in his article referred to—I cannot see what *moral* advantage is to be derived from requiring a patient to endure the pangs of that "hell o' a' diseases" until "some more convenient season" for taking out the tooth, and when it can perhaps as well and as safely be done then as at any other time. Still, I very freely admit that harshness and undue precipitancy of manner on the part of the dentist, or an awkward, unskillful method of operating, may have a bad influence on the mind of the patient; and, worst of all, that deceiving a child by telling him what is not true, in relation to any operation, cannot be too strongly reprehended; and the moral influence of thus destroying his confidence in the truthfulness of his parents and friends is more to be deplored than the endurance of much pain and many sicknesses. I therefore never allow myself, knowingly, nor any one else in my presence, thus to deceive young or old; but

I always tell them that it *will* hurt, but probably less than they expect, and much less to have it out at once than it will to suffer with the toothache for an indefinite period, and then be hurt just as badly and perhaps worse in the having it out. Does not this exert a better "moral influence" than to encourage our patients with the hope that they may not be hurt, and then disappoint that hope? Such has been my observation.

Is there any *moral courage* in the practice or the teaching that "if the tooth cannot be removed with certainty, it should not be attempted, either with young or old," and because the operator may be censured if he fail? Are the reputations of dentists generally so frail, that the failure to extract a tooth will destroy them? And have we no duties to fulfill but the guarding of our reputations for being expert "tooth pullers?" If we attempt only when we *know* we shall succeed, then should we never attempt to extract any tooth. For, are we not all sadly disappointed sometimes in what we think plain cases? Shall the surgeon never attempt to save life by an operation, unless he is sure of success? Shall the physician never prescribe, unless he is sure of success in his treatment? Then woe betide frail, afflicted humanity!

Although, "for many years," I have not often failed to extract any tooth that I have attempted, I cannot say with my learned brother, that "we have not been caught for many years in making more than a second attempt to extract a tooth;" for with all the circumspection that I can use, I sometimes find myself obliged to try more times than that, and I am not aware of ever having got myself into any "scrape" by thus conscientiously trying to do my duty.

And is it "not the duty" of every man who holds himself out to the community as a dentist, "to attempt to extract a tooth for a patient under any circumstances," (unless they are very extraordinary,) "if the patient suffers pain or inconvenience from bad taste in the mouth, or a difficulty in keeping the mouth clean?" If this be not his duty, and a most important and imperative duty, then I most frankly confess that I know not yet what his duty be! Is it not one of our most important duties to relieve our patients from pain, and the inconvenience of bad taste in the mouth? from causes which produce so much suffering, and which so directly disturb the functions of the stomach, and contaminate and poison the very air they breathe, and thus often produce such depressions and nervous irritations as seriously to endanger their health and lives, besides rendering them offensive to all with whom they speak?

No, no! Refusing to operate, and at once, under such circumstances, cannot be our duty to our patients, however it may suit our own feelings or convenience. At least, I have not so learned mine, and I hope that my brethren have not so learned theirs.

If my brother J. D. W. is correct in his statement, that "it would be endless to enumerate the cases that we know and hear of, where the

dentist has tortured his patients for hours, and been at last obliged to abandon the operation," I fear that the dentists in his neighborhood are a great set of bunglers, notwithstanding the advantages they have had of having the DENTAL COSMOS, and a college of dentistry in their midst, and in which, if I recollect aright, J. D. W. was at one time a professor.

It is, indeed, most earnestly asked, as you so very naturally say, "It may be inquired what does it mean to get a tooth in a condition for extraction?" And it is asked, too, what he means in his answer to that question, by saying, "If a tooth is decayed much below the border of the alveolus, except the merest shell, and the gum and socket are too hard and too strong to be cut away, it is better to break down the projecting shell, or crown, and wait for the roots to loosen and rise from their sockets, as they will do in time by the morbid condition of the periosteum, and the gums, and the alveolar border?" I have never yet seen a gum so "*hard and strong*" that it could not be cut away!

But more seriously. If my brother J. D. W. were applied to, to remove a splinter of wood, or other hard substance, which had accidentally been stuck into the hand, or into the gum of his patient, would he break down the projecting points and leave it there "to loosen and rise" from its socket, as it too would do in time? If not, why then leave the root of a tooth after it is denuded of its periosteum for a considerable portion of its length, and thereby rendered as rough and irritating almost as the wood would be, to work out in that manner? Or, if applied to before it was in that condition, why should we wait to have it become so?

Although "it often happens that teeth are decayed to the pulp before they are fully erupted, and it is difficult to get at the neck with the forceps," I do not see that that is any good reason for refusing to take them out when necessary; and I think further, that the man who would at the present day, in many cases, attempt to use forceps for the extraction of such teeth, or who uses forceps generally in the extraction of the roots of teeth, and especially if they are so decayed as to be mere brittle shells, or who cannot safely remove a tooth, and more particularly a lower wisdom tooth, before it has fully erupted, is not entitled to the reputation of being a "tooth puller."

WHEELING, Va., *June*, 1860.

We give place with pleasure to the above strictures on our article on extracting teeth, under the head of "Practical Hints," by our esteemed friend and contributor, Dr. Robertson. We are beginning to believe that practical hints are as good a way to arouse discussion on the various subjects in our profession as regularly set articles; but we do not desire to occupy as ultra ground as some reviewers dispose to push us to. We may be pardoned for suggesting that a little more care in making quotations, and reflection before deductions are drawn, would be better for both sides.

We did not intend to make our assertion quite so broad as the doctor gives us credit for; instead of the quotation reading "daily experience," it reads "almost daily," etc. The doctor admits that a great many teeth are extracted that ought not to be, and says, "yet I am not prepared to admit nor believe that the whole profession of dentistry are a set of block-heads, or that when any one of its members dies, all the light of the profession will go out." Now this is unkind, and contrary to the spirit of any article we have ever written, and not in keeping with the tone of the author's former articles. If the article, "Practical Hints," referred to is "so entirely adverse to all my notions of correct practice," we must assert that we have the facts for the position we have taken, or we would not have taken it, and we have long contemplated calling the attention of the profession to it. We cannot see the wide difference in our second sentence that the doctor attempts to make; the sentence in our article "there are very many circumstances to be taken into consideration, however," is leaving the "reasonable hope" to the judgment of the operator; and we think more respectful to the good judgment of the profession than to attempt to define every detail in the great variety of circumstances and cases. We never "tamper with an aching tooth," or "the health of the patient;" we are not willing to be placed second to any one in the profession in a proper sensibility on that subject, as far as our abilities will enable us to judge and act. We never allow a patient to suffer "the pangs of that 'hell o' a' diseases' until some convenient season." Now is it fair to charge us with this in the face of this sentence? "Palliate the pain, or at least make an effort to do so; as a general thing, this can be done, if it be from exposed pulp or incipient abscess." We never make it a point to tell patients that it *will* hurt to extract a tooth, or that it *will not*. We occupy a middle ground, and endeavor to get the advantage of their *moral courage*, and then we always produce a proper *moral influence*. The doctor further says: "Is there any *moral courage* in the practice or the teaching that, 'if the tooth cannot be removed with certainty, it should not be attempted, either with the young or old?'" If we cannot rely on our patients for *nerve*, or in other respects they are not in condition, we do not attempt to extract a tooth, unless there is "impending danger;" this we leave to the judgment of the operator. And when the case becomes parallel with the duty of the "surgeon" or "physician" we always act, though the chances may be greatly against us, although we think the doctor is calling on his imagination in drawing a parallel between the two. We do not deny that it is the duty of a dentist to extract a tooth when called upon to do so, if circumstances require it; but not for bad taste in the mouth, or from difficulty in keeping it clean, unless the operation can be done without undue suffering. If we believe a tooth, or a number of teeth, disturb the "functions of the stomach," or "nervous system," we always consider those sufficient reasons

to take some responsibility in attempting to extract teeth, even though it may cause pain and suffering temporarily, we will agree on that subject, but we do not believe in the breath doing so much harm to the stomach as some others do. The doctor, in saying, "refusing to operate and at once," etc., becomes, to our ideas, rather hysterical on this part of his subject. We do not say that a *gum* is too *hard* and *strong* to be *cut away*; we have said, "and the *gum* and *socket* are too hard and too strong to be cut away." We cannot agree with our esteemed friend, that he makes a strong case by comparing the treatment of a splinter in the flesh as analogous to the root of a tooth. We really think, that if the doctor will re-read and study our article, he will not find us far wrong.

J. D. W.

PLASTIC MATERIAL FOR CEMENTS, LUTES, TEMPORARY FILLINGS, ETC.

BY DR. B. WOOD.

Gutta-percha.—Few substances have in so short a time acquired more importance in our profession than this. In nearly all the uses to which it has been put, it has proved itself of *some* benefit—a fact which can be affirmed of few other substances, though of much greater pretensions. Vulcanized, it assumes, in conjunction with the "hard rubber," high claims as a substitute even for gold in mounting artificial teeth. But not to speak of this, or of the varied uses to which it is so generally applied, I will mention here two or three simple preparations of it which I have found useful either at the chair or in the laboratory.

As a temporary filling, gutta-percha is perhaps as *durable* as any other plastic material in use, except amalgam. It has the advantage of being perfectly innoxious beyond suspicion. It is, however, quite troublesome to apply; clinging to the instruments rather than to the tooth, whether in introducing it in the first place, or smoothing it afterwards, so as to draw out of the cavity; or if left to harden, it is too firm and tough to admit of trimming off with a sharp instrument without danger of displacing it. These difficulties are of course increased if there is the slightest moisture present. Mixed with silex, lime, or other earths, as in the preparation known as "Hill's Stopping," it is more easily applied and trimmed off, owing to the diminished cohesion of its parts; but it is, for this reason, more easily worn away by attrition in mastication than in its pure form; this *hardening*, which simply renders it *harder to melt*, is objectionable for sensitive teeth and those with exposed nerves, on account of the greater heat required in making the application.

I am not aware of any substantial improvement of gutta-percha in the quality of durability consistent with other qualities essential for this use;

but the following preparation obviates the objection just referred to, and will answer the ordinary requirements of *temporary* fillings:—

Two or three parts (by weight) best prepared gutta-percha, one part gum sandarach, one part gum elemi; melt in porcelain cup, taking care to avoid burning, and stir the ingredients while melting so as to secure a perfect mixture.

Gum elemi readily combines with gutta-percha—and, indeed, when liquefied by heat, is a perfect solvent of it—and it promotes the combination of sandarach, which otherwise mixes imperfectly and with difficulty.

This compound is somewhat harder (though less *durable*) than gutta-percha, softens more readily by heat, and is more convenient of application. It admits of packing, gives little trouble by clinging to the instrument, while the superfluous portions may, by the point of a plugger held a moment in the flame of a spirit-lamp, be removed as easily as wax. It will adhere to the cavity although moisture be present; and, when desired, the whole may be cut out again with facility. For this and other reasons, I use it altogether in sealing up cavities after having made an application to destroy the nerve. In such cases we cannot always dry the cavity; frequently the nerve bleeds, or if we make the application with a pellet of cotton moistened with creosote, (which I regard more efficacious than arsenical *paste* or *pill*,) we have a wet surface, rendering the application even of wax troublesome. Wax is too soft for a secure cerement, while to remove gutta-percha from deep cavities, in which alone it can be well secured under the circumstances, is something of a task—which objections led me, some two or three years ago, to “invent” the above substitute. By using the white prepared gutta-percha, or a mixture of it and the pale pink, we can secure a *color* as desired.

Another compound, prepared at the same time, which will be found a very useful *adhesive* cement, consists of from two to three parts of gutta-percha (white or colored, as desired) melted with one part of gum elemi. It is the most adhesive cement I know of. It will stick to *anything*, no matter how smooth and glossy the surface, and does not appear to object much to moisture. It is tough and strong, and not being affected by water or acids, is convenient in a variety of ways about the laboratory—for repairing plaster casts, wood, glass, crockery, etc.

A useful cement for sustaining teeth on a plate while taking the *fit* in the mouth, and preparatory to covering with plaster, is made by melting together equal parts of gutta-percha, beeswax, and rosin. It adheres better than wax, is harder and stronger, but not too adhesive to prevent its ready removal when desired. I generally use it made up into cylinders or sticks, melting one end over the flame of a spirit-lamp and letting it drop on the points to be united.

Water-glass, or Liquid Silicate of Potash and Soda.—Soluble glass, produced, as is well known, by the combination of silex with potash, or

soda, or both, and rendered fluid by solution in water, has for some time past, in consequence of the improved modes of preparing it, led to high expectations in regard to its application in the arts. I have not been able to turn it to much account in dentistry. It signally fails for some of the purposes for which it has been highly recommended. As a varnish, it cracks and is injured both by heat and moisture. Combined with a mixture of lime and sand, or with other earths, it forms, on drying, hard cements, differing, however, in relative hardness according to the earthy materials. But these for the most part soften and disintegrate in water, which dissolves out the silicate by which the other ingredients are cemented together. This may in most cases be obviated by saturation, after drying, with dilute acid, which, combining with the superabundant alkali, transforms the *soluble* into *insoluble* silicate, the latter serving as the medium of cohesion. Also the compounds made with the silicious earths are not affected by water, if subjected to a red heat. In this case also a portion of the alkali appears to be disengaged, probably to enter into combination with the earthy matter, leaving the glass in an insoluble state. But in practice these resorts are inconvenient, and generally inadmissible. But another difficulty with the most of these mixtures is, that the upper or exterior surface dries and contracts before the lower is hardened, causing the mass to crack and warp; and, what is a more serious objection, these lower or interior portions, which are so much slower to dry, are generally found wanting in coherence, so that they readily crumble away; the solid constituents of the solution having apparently been abstracted and appropriated by the exterior portions during their solidification. Clay and the finer earths are peculiarly liable to this fault, while the coarser and more granular earths are comparatively free from it; their porosity allowing them to dry more uniformly throughout.

A cement, free from the objections last mentioned, and one of the hardest of the kind, is produced by mixing about equal measures of fine sand, ground spar, and marble dust, (carbonate of lime,) and making it up (as required for use) into a thick paste with soluble glass in solution, or "water-glass," of the consistency of syrup. It dries uniformly without perceptibly shrinking or warping, is free from cracks, presents a homogeneous structure throughout, and is very strong. This compound is useful as a dry cement or lute where not subjected to a high heat. But if heated to redness, it subsequently, upon exposure to the atmosphere, gradually loses its coherence, swells up, and finally falls to powder. This is due to the marble dust, or rather lime, to which it has been reduced by heat, reabsorbing carbonic acid from the atmosphere, with which it combines, leaving the other constituents "free."

For this reason the lime-earths are not suitable as admixtures in these cements if designed as a fire lute. For this purpose we may use two parts by measure of sand and one of spar; or equal parts of sand, spar,

and soapstone; or equal parts of soapstone and sand. These will stand a white heat without shrinking, the last named actually expands, though it does not appear to retain its strength so well. They are useful for repairing breaks and fissures in muffles, furnaces, crucibles, etc. If spar be in excess the mass vitrifies and shrinks, but for lower temperatures it answers a fine purpose. I speak of the ground spar as obtained at our dental depots.

Soluble glass is precipitated from its solution without decomposition by alcohol, which abstracts and combines with the water. This may be redissolved by water as before.

It is decomposed by acids, which combine with its alkaline constituents, wholly or in part, and precipitate insoluble silicate, or silex, according to circumstances. So also it is decomposed by plaster of Paris, owing to the sulphuric acid in this substance. Hence, when mixed with plaster, the mass instantly hardens and lumps up, or *curdles*, and when dry readily crumbles.

With oxide of zinc it does not mix well, owing to the acid reaction of the oxide: the mass has little plasticity, is rough and granular, and deficient in strength—its “behavior” being something similar to that of a mixture of water-glass and plaster of Paris. In a few minutes it acquires throughout the consistency of plaster freshly set with water, and, like it, becomes harder by thorough drying. It is not broken down or sensibly affected by the action of water, cold or hot—indicating a chemical combination and not a mere mechanical mixture, as in the case of most earths, the soluble silicate having parted with alkali and become insoluble. I do not find it to possess qualities fitted for a useful application, and only mention it here as having been spoken of for filling teeth; but if there were no other objections, it hardens too slowly, and at the hardest is quite too frail for the purpose.

Oxy-Chloride of Zinc.—This compound is interesting in view of its usefulness in the arts—in making paints, lutes, cements, etc. It especially claims notice here owing to its recent introduction as a material for plugging teeth. Its applicability to this depends upon its constituents—oxide of zinc calcined, and chloride of zinc in solution—forming, when mixed, a *plastic* paste which passes in a few moments to a *solid* compound, insoluble in water. These substances are probably the essential components of all the variously named plastic preparations for filling teeth, which come in the shape of a powder and a liquid to be mixed into a paste for use. The specimens which I have seen exhibit the same chemical reactions and general properties as the oxy-chloride. Like it, they are insoluble in water, but soluble in acids—the insoluble sediment left being simply earthy admixtures which, for whatever purposes used, are noways indispensable to the chief result. The powders and liquid are generally scented with winter-green, cloves, or other pleasant flavor.

Mr. Sanders, a chemist of St. Louis, communicated to the profession, some time ago, the following formula for these preparations: "No. 1. The powder consists of freshly calcined oxide of zinc, 9 parts; finely pulverized borax, 1 part; finely powdered silix, 2 parts;—all mixed together. No. 2. The liquid is merely a concentrated solution of chloride of zinc in the smallest possible quantity of silicate of soda, or soluble glass."

I do not perceive that the sand, borax, and soluble glass are particularly advantageous. With chloride of zinc soluble glass is incompatible, being precipitated by it as an insoluble silicate. It is not indispensable that the chloride solution be highly concentrated, the result being dependent chiefly on the purity and proper calcination of the oxide. This, as obtained at the shops, (commonly called "flowers of zinc,") should be calcined at about a red heat. If the heat be too low, it will not set at all, or very slowly. If too high, it sets too quickly; but in this case the setting may be retarded by adding a little water, or by using a more dilute solution of the chloride.

The oxide of zinc of commerce is frequently impure, or vitiated as to this use by the mode of preparation, for which reason it is best to prepare it from the metal; burning this in a crucible and receiving the oxide, as it sublimes, in another crucible inverted over the first. The crude oxide, or the *sub-oxide*, as it may be called, and which can be prepared by keeping the metal or dross at a red heat, but below that at which it burns and sublimes, and stirring it until reduced to a powder, sets equally well, and indeed forms a harder compound. This, however, is of a dark or bluish-gray color, and may contain unoxidized metallic particles. Its *cost* is about *ten cents a pound*, instead of "*ten dollars an ounce*," the price at first affixed to the *professional* article.

Some of the plastic preparations offered for sale contain a large admixture of earthy matter, probably to diminish the expense, or to retard or regulate the "setting." Thus, while one specimen dissolved completely in acids with but a trace of sediment, another left full half its bulk in earthy powder. What these admixtures are is best known to the manufacturers. Nor is it of much moment. They are not essential to the main result, though they may promote *plasticity*—or, if nothing else, serve to disguise the composition.

The calcined oxide of zinc may be rendered more plastic as well as slower in setting by mixing with it uncalcined carbonate of zinc, (say one-fifth to one third part,) the result being equally as hard and strong. The carbonate itself mixed with a solution of chloride of zinc does not "set," but forms when dry a clay-like mass which does not disintegrate or perceptibly soften in water; (mixed with only water and dried, it falls to powder the moment it is immersed.) Hence it would not be objectionable in the compound designed as a water-proof cement, or paint, etc., for which purpose it might indeed be used in much larger proportion than

above indicated. It does not, however, appear to be an ingredient in the specimens of plastic material for dental use which I have seen.

As to the merits of preparations of oxy-chloride of zinc as material for plugging teeth, whether pure, or as prepared for dental "commerce" under the various names of artificial *plastic bone*, *crystal cement*, *diamond dentine*, or their Greek and Latin synonyms, it may be thought presumptuous for me to venture an opinion, as not having duly tested them *in the mouth*—my experiments having been made in the laboratory, in order to determine whether it would be safe to experiment with them in the mouth. They all appear to be somewhat harder than plaster of Paris. They have the advantage of not being soluble in *water*, or sensibly affected by it. But they are not hard and compact enough to resist the attrition of mastication for any length of time. They are rapidly broken down and dissolved by acids, however much diluted, such as the nitric, muriatic, sulphuric, etc., and are accordingly liable to be acted upon by the fluids of the mouth. They are further objectionable as consisting of base metallic *oxide* and *caustic*, both deleterious and ready for mischief the moment released from a state of aggregation, whether broken down by wear or by the solvents of the mouth. They also possess a chemical reaction upon the tooth bone itself, especially in the moist state in which they are introduced, which cannot fail, I think, to injure the structure at the points of contact, if not in the end destroy its vitality throughout. The precautions necessary to counteract the *setting of the teeth on edge*, and to prevent excoriation of the gums and lips wherever the paste happens to touch, should, it seems to me, be sufficient to warrant some opinion, without the necessity of first subjecting the material to the "*test of time*" in the mouths of our patients.

We ought, at least, to know what an article *is*—its composition and nature—before undertaking to tamper with it in our practice.

NASHVILLE, TENN., May 20, 1860.

FILLING TEETH WITH OSTEOPLASTIC.

BY JESSE W. CORNELIUS.

As there appears to be quite a diversity of opinion relative to Pearson's Osteoplastic, I have determined to present my experience with regard to it.

I have employed it some time in my practice, filling teeth in several cases which it was impossible (owing to the shape of the cavities) to fill with gold, and so far find it a decided success.

Two months ago I visited a patient, Mr. C., who had a central incisor that was half decayed by caries. The tooth had been filled several times with gold, but the plugs would not remain in. After some time spent

describing the nature of the osteoplastic, he finally consented that the article should be employed, remarking, however, at the same time, that he had but little faith in the ultimate success of the effort. A few days ago I called upon him, and found the filling looking as well as the day it was put in, and that no unpleasant sensations had been experienced since my last visit.

I have filled many other teeth radically affected with caries, and in all the cases entire satisfaction has been given. Several of my own teeth were filled, about six months back, with this preparation, and, so far as I can determine, they are in a perfect condition.

Bearing, as the osteoplastic does, a close resemblance to dentine, and on that account being a desirable filling for the front teeth, after being thoroughly tested, I think it will supply the place of gold in many instances.

CEDARVILLE, Ill.

"OS ARTIFICIAL FILLINGS."

BY D. VAN DENBURGH.

"It becomes us in the treatment of the natural organs, to try new materials with caution."—C. H. ROBERTS, M.D. (*Dental Cosmos*, June, 1860.)

IN most of our dental journals appear advertisements and laudatory articles of a new cement for filling teeth, of which zinc, in its forms of oxide and chloride, is the principal and essential ingredient, but known among dentists by various names, which are "Os Artificial," "Osteoplastic," "Adamantine Enamel," and doubtless a score of others equally os-tentations. From the newspaper advertisements of dentists, and from the better evidence of frequently seeing teeth filled with this material, it would appear that many dentists throughout the country are using it.

So far as I have had opportunities to observe the action of this substance in the mouth, the results are precisely such as might be expected from the known chemical constituents of it. After a few months wear it generally appears soft and crumbling, broken away from the edges of the cavity, and the tooth itself in many instances softened and corroded as if by the action of an acid. By these observations I was led some weeks since to procure a package of C. H. Roberts's Os Artificial, and to subject it to some experiments in my laboratory calculated to test its qualities as a tooth filling.

This paste, when properly mixed, begins to harden almost immediately, and requires, when free from moisture, two or three days to attain its utmost firmness and strength. In this state it has a grayish-white color, and in other respects resembles slate-stone.

The following are the results of my experiments, so far as they bear upon its use in dentistry:—

1. The presence of moisture interferes with its hardening, and in a great measure prevents it. It requires half an hour to attain a power of resistance equal to that of "Hill's Stopping," so that if kept dry it takes as much time as gold filling, and if not kept dry, its edges and surface will never attain this power of resistance.

2. It will not adhere to a tooth when dry and hard. Placed upon a smooth plain surface of a tooth, it drops off with a mere touch when dry.

3. It is not impervious to water, but will absorb it like stone. A dry piece of certain weight will exceed that weight after being soaked in water, though the surface be wiped dry.

4. It shrinks in hardening. Fill the end of a glass tube one-quarter of an inch in diameter with it, and twelve hours afterwards water will escape from the tube around the plug, and the plug will easily slip out. A cavity in a tooth filled with it will absorb a colored liquid around the filling.

5. Acids work upon it with avidity. Diluted sulphuric acid, without any apparent effect upon the tooth, will in a few hours entirely disintegrate a filling of this material. Common cider vinegar and lemon-juice have the same effect.

These are simple facts that any one may prove almost as easily as doubt, and, so far as the value of this paste as a tooth filling is concerned, any one of them is sufficient to prove it worthless.

Oswego, N. Y., *June*, 1860.

A NEW ALLOY.

BY M. H. CAMPBELL.

HAVING lately been trying a course of experiments with alloys by way of finding some combination of metals which would more entirely resist the action of bad mouths and worse stomachs, I have found the following a plan, which works well in some difficult cases, which I will report, as I doubt not many, if not all who practice dentistry, have met with similar ones. A short time since, I had a plate presented to be replaced by me by one which, as the patient expressed it, "would not rot in her mouth." The plate had the appearance of very old silver, and which had never been cleaned; but upon boiling it well in acid and afterwards in a strong alkali, it proved to be an eighteen-carat gold plate with solder a little less than twelve carats. After cleaning thoroughly and replacing it in the mouth, it commenced to oxidize upon the surface of the solder, and in thirty-six hours it would be of a greenish-black color upon the solder and backings of the teeth, and a dark purple over the rest of the plate. After puzzling over it for awhile, I hit upon this plan: I took gold coin and melted it with sufficient platina to reduce it to twenty carats fine, which I could easily solder with twenty carat

gold alloyed with silver. Made a plate after that plan, and found it bright after three months wear.

I discovered this plan to be still more useful in making silver plates, (which every country dentist must use more or less,) and the objection to which is the brass in the solder. Now, by melting the silver and refining it, and then adding to every ounce two or three dwts. of pure platina, you can use fine silver for solder, thus doing away with the use of brass and copper entirely. Perhaps I am only telling what some one else has told before me; but the idea is original with me, and having never seen it noticed, I know not whether I am telling anything new, or only boring you with an every-day saw. But I trust that if the latter, you will see in my youthfulness a sufficient excuse for not knowing it before. If this is not too aged, and you consider it worthy of mentioning in your valuable journal, you are at liberty to make any use of it which you deem proper, and I shall feel repaid for my trouble if it should by any means prove of service to any one.

FULTON, N. Y.

PROCEEDINGS OF DENTAL SOCIETIES.

PENNSYLVANIA ASSOCIATION OF DENTAL SURGEONS.

REPORTED BY GEO. T. BARKER, D.D.S.

A MONTHLY meeting of the Association was held on the evening of June 12th, at eight o'clock.

President, Dr. Dillingham, in the Chair. Present, Drs. Buckingham, McQuillen, Garretson, Fitch, Flagg, Barstow, Van Osten, Harris, Peirce, Roberts, Townsend, Hopkins, and Barker.

The President announced the subject for discussion to be the

"TREATMENT OF THE DENTAL PULP."

Dr. Peirce remarked, that before considering the subject of discussion for the evening, he desired to present to the notice of the Association an interesting case. About four years since he treated for Dr. Barstow an exposed pulp, in first right inferior molar, removed the pulp and filled the fangs as perfectly as was in his power. The tooth subsequently became painful from periosteal inflammation, and was extracted; the pain, however, has not been alleviated by the extraction of the tooth, but still continues, appearing to be located in that portion of the jaw from which the tooth was removed. The pain is local, and of a paroxysmal character, being often induced by movement of the maxilla, but does not extend above the angle of the jaw. He would be glad to hear any suggestions for its alleviation.

Dr. Buckingham remarked that he had frequently seen similar cases,

and, indeed, occasionally suffered himself from neuralgic pain located in the right superior maxilla, from which all the teeth had been removed. He has found nothing that would permanently relieve the pain.

Dr. McQuillen, after an examination of the mouth, suggested the removal of a filling, in the anterior approximal surface of the second inferior molar, (adjoining the tooth that had been extracted,) as it appeared to be defective, and there was a possibility that the pulp might be nearly, or quite, exposed under it. If this was not the case, the cause of trouble was no doubt somewhere along the course of the third branch of the fifth pair of nerves, as it runs through the bony canal of the lower jaw. Under such circumstances, should the pain become unendurable, relief could only be obtained by trephining the lower jaw and removing a section of the inferior maxillary nerve, an operation introduced by Prof. Pancoast for relief of facial neuralgia, and followed by the happiest results. He sincerely hoped, however, that the pain had its origin in the tooth referred to.

Dr. Peirce was glad to hear the suggestions of the gentlemen, but did not consider the tooth referred to by Dr. McQuillen to be the cause of the difficulty, as he had examined it very carefully.

He would now consider the subject for discussion, and remarked that he had never successfully treated an exposed pulp by the methods advocated by some practitioners, such as touching the exposed part with nitric acid, capping with gold or quill, and the many other modes that had been suggested to preserve the vitality of the pulp after exposure. The failure of these methods he thought due to the irritation of the pulp, induced before the case is seen, and often before the pulp is exposed, and if the tooth is filled while in such a condition, the pulp, from contact with a foreign substance, soon loses its vitality, the tooth is changed in color, and will, eventually, be lost from periosteal inflammation, if not relieved by being thoroughly cleansed and fangs properly filled. He has therefore entirely discarded such treatment of the pulp when exposed, but if a thin septum of dentine protects the pulp, would bridge his filling, preserving the dentine from pressure, and the pulp from changes of temperature.

When the pulp is exposed, applies the arsenical paste, composed of arsenious acid, morphia and creosote. He was surprised to see, in one of the text-books upon dental surgery, a remark by the author that sulphate of morphia was useless and objectionable, and should be discarded. His judgment was directly the reverse, and considered it particularly valuable, as it arrests much of the pain which is induced by the application of the remedy, and thinks, where it is used and combined with the others in the proportion of two-thirds morphia to one-third arsenious acid, with creosote sufficient to make a paste, there is less liability to induce periostitis than with the old formula in which morphia is discarded.

The time to leave an application of the paste in a tooth must of course

be influenced by the age and condition of the patient; usually, in adult teeth, allows it to remain twenty-four hours; after having removed the application, is in the habit of placing in the cavity a pledget of cotton, and allowing it to remain another day. His reason for so doing is in consequence of the greater facility with which the pulp can be removed, than where it is attempted immediately after the death of the pulp and the removal of the application.

Dr. McQuillen remarked, as patients frequently present themselves to the dental practitioner, complaining of odontalgia, in which it is somewhat difficult to determine whether the pain is due to *actual exposure* of the pulp, or the *inefficient protection* afforded to it from variations of temperature by a *thin covering of dentine*; and as it is an incontrovertible fact, that the pulps of a great many teeth have been destroyed by applications of the arsenical paste, when they were not exposed, it becomes a matter of paramount importance that an *accurate diagnosis* should be formed prior to attempting any course of treatment.

In forming his diagnosis, he is guided by the following evidences:—

First.—The statement of the patient, that the pain is *severe* and *constant*, and increased by the pressure of foreign substances, particles of food, etc., in the cavity of decay; (but not by the mere occlusion of the teeth;) and becoming more *intense* toward, and during the night, owing to the nocturnal febrile exacerbations, that all persons are more or less subject to, as evinced by the flushed cheek and sparkling eye.

Second.—The visible exposure of the pulp, or if this is not accurately defined, the oozing of blood or serum from it (and not from the gum) into the cavity of decay. When the cavity is out of sight, a small piece of tissue-paper introduced by a pair of tweezers will determine the presence or absence of the blood or serum.

Third.—The plan adopted by the late Dr. Townsend in doubtful cases, which, he believes, is as follows: If on packing a pledget of cotton into the cavity after the caries has been removed, the pain is *increased* and *continues* after the removal of the cotton, the pulp is exposed; but should it *lessen* in a few seconds, and *eventually cease*, a thin covering of dentine will be found protecting it.

Fourth.—The *experimentum crucis*, touching the pulp with an excavator or a probe removes all doubt of the actual condition of affairs. This, however, should always be avoided if possible, as it creates an intense and unnecessary pain.

If the examination should prove that the pulp is covered by a thin septum of dentine, the treatment should be prophylactic. To accomplish this, the mere introduction of a gold filling, however perfectly introduced, is not always sufficient; for the variations of temperature to which the pulp is exposed by the conducting quality of the gold, is frequently quite as efficacious in destroying the pulp as the arsenical paste. Under such

circumstances, he adopts a method suggested recently to him by Drs. Dunning and Smith, of New York. Before introducing the gold filling, the sensitive dentine is covered with a *thin* layer of gutta-percha, which, acting as a non-conducting medium, protects the pulp from the pernicious influences of depressed or elevated temperatures.

Should the pulp be found exposed, he has, with due respect to the opinions of those with whom he differs, but one course of treatment, and that is, to make an application of the arsenical paste; for in all the cases where he has made careful efforts to preserve the vitality of *exposed pulps*, he has found it necessary eventually to remove the fillings, and apply the paste to a living pulp, or extirpate one already dead. And in addition to this, has seen cases from the hands of fellow-practitioners in which the same mode of treatment had been pursued with equally unfortunate results.

Before applying the paste he endeavors, by the removal of the caries, to make as thorough an exposure of the pulp as practicable, so that the application may be placed in direct contact with it. This paste, consisting of the well-known proportions of arsenic, morphia, and creosote, is introduced upon a pledget of cotton; over this is placed a large piece of cotton, which completely fills the carious cavity. The patient is then dismissed until the next day, when the application and pulp is removed. The first step in the latter operation is to make the opening into the pulp cavity as large as possible. After this, introduces delicate and malleable broaches, either barbed at their sides, or with hooked extremities, and by *twirling* them in the pulp cavity, entangles and removes the devitalized structure. There is nothing, perhaps, in the practice of dentistry more deceptive than the impressions practitioners are liable to form with regard to the entire removal of pulps, for instead of extirpating them, they are frequently forced far up the fang, and even after the removal of what was conceived to be the entire structure, a careful investigation discovers a considerable portion still in the fang. Every one no doubt can recall such cases as these. The decomposition attendant upon such remains, is, undoubtedly, one of the most fruitful causes of periodontis.

Having removed the devitalized pulp, after washing out the pulp cavity with a syringe, and then drying with tissue-paper, he endeavors, to the best of his ability, to *fill* the entire cavity with *gold-foil*, carrying the material as far into the *fang* or *fangs* as practicable.

A proper regard for truth would not permit him to claim the uniform success that some assert have attended their efforts. He had met with gentlemen who stated positively that they never had any failures. He is free to confess, however mortifying the acknowledgment might be regarded by some, that he has had failures. And when taking into consideration the idiosyncrasies, temperaments, and cachexiæ, (the inflammatory, scorbutic, syphilitic, etc.,) that patients labor under; and the

fact that a tooth from which the pulp has been removed is not in the perfect physiological condition it was before that occurred, and is, therefore, *predisposed* to disease, particularly in the cachectic conditions referred to, and when subjected to an exciting cause such as inclement weather, he had reason to believe that all, and knew that many have their failures.

Dr. Flagg considered it was of the first importance to be able to diagnose positively the existence of an exposed pulp, and was impressed with the truth of this position from having seen many cases that had been subjected to arsenical treatment for days and weeks, with a view to the destruction of a *supposed* pulp, when no such organ had been in existence for months and possibly years. Has tested for exposure, in various ways, and forms a diagnosis by the combination of various results; uses hot and cold fluids, and expects an immediate and painful effect from their application; occasionally touches gently with an untempered probe, and stated that he did not regard it as absolutely necessary to inflict much pain by so doing, provided it was done very gently—considering that it afforded the most positive indication of the best location for the pulp-destroying substance. He examined cavities which opened posteriorly, with mouth-glass, and probed by reflection, depending much upon an accurate knowledge of the relative positions and shapes of the various pulp cavities and fang canals; and, lastly, referred to Professor Townsend's method of pressing cotton into the cavity of decay, and if it produced pain, *which continued* for some seconds or possibly a minute *after*, the cotton was withdrawn—received that as very strong evidence of an exposed pulp. Has treated many cases of slight exposure with creosote, nitric acid, tannin, and various other proposed topical applications, but has yet to experience the *first case* which has withstood the test of from eighteen months to three years, the ordinary length of time required for the devitalization and disintegration of a pulp with the accompanying unpleasant symptoms. Has therefore abandoned the practice entirely. After diagnosing exposure, proceeds at once to destroy the nerve; and uses for this purpose the following: R.—Ars. acid, Sulph. Morph., equal parts by weight; Ol. Creosat. q.s.; made into a soft paste by triturating them for at least three or four hours. These proportions had been used both by his father and himself, and had satisfactorily stood the test of twenty-five years. He preferred a soft paste to the hard pill which had been recommended by some, in consequence of its greater facility of adaptation and the absence of mechanical irritation. Applies it upon a small piece of cotton, and requires the testimony of the patient that it touches the "sore spot," securing it in position by a cotton plug saturated with Sol. Sandarach. Pain usually supervenes, which continues with more or less violence for from four to six hours, with possibly another accession about twelve or fifteen hours after the application is made, which is usually of about half an hour's

duration. Allows the paste to remain for twenty-four hours, subject of course to some modification dependent upon the age and temperament of the individual. Not unfrequently finds some pain attendant upon the attempt to extirpate the pulp, but removes this by an application of pure Acid. Nit. upon a gold wire; then drills into pulp cavity, enlarging the opening with burr-drills until he has an orifice the full size of the canal; removes what portion of the pulp remains in the cavity with fine barbed or square broaches, passing them gently as far as possible into the fangs, and turning them rapidly for a long time. Allows the hæmorrhage almost entirely to cease, washes the cavity by syringing, and then carefully fills the canals, as far as possible, with a fine thread of cotton saturated with creosote; employs this as a styptic and slight stimulant to remove any tendency to congestion from undue irritation. Fills pulp cavity and cavity of decay with cotton and sandarach plug, and allows it to remain one week if possible. All is then removed, and, whenever practicable, the fang is filled solidly to the apex with gold or tin foil dipped in creosote; and experiences an *innate satisfaction* that it can only be removed with the utmost difficulty. When not practicable to fill to the end of canal, introduces a small piece of thread with creosote, and allows it to remain, filling over it and compacting with foil. Considered that the fangs of both upper and lower incisors and cuspidati; first and second bicuspid, lower; second bicuspid, upper; palatine fangs of superior molars; lateral or posterior fangs of lower molars, and buccal fang of superior first bicuspid, should always be thoroughly cleaned and filled. The palatine fang of first bicuspid superior, buccal fangs of superior molars, and mesial or anterior fangs of inferior molars, should be partially filled whenever practicable.

Dr. Fitch said, in some respects his remarks would be a repetition of those made by gentlemen who had preceded him. In reference to the preservation of exposed pulps by capping, cauterizing, etc., he must be permitted to say, that in consequence of non-success with all of these modes, he had abandoned the practice some five years since. The preservation of the pulp of a tooth is of the greatest consequence, and it should not be sacrificed whenever it is possible to save it; but, while this is true, he had little if any confidence in the means usually employed for its preservation after exposure. There are gentlemen who profess to have had success in the use of these means; yet he was disposed to doubt that it was very general. All present would readily admit that metallic fillings, or indeed any material placed in contact with the nerve tissue, would produce sufficient inflammation from pressure and changes of temperature to eventually destroy it. Operators, therefore, are not safe in cauterizing or capping, from the fact that these influences will, in the hands of most dentists, continue to operate upon the pulp, owing to some unavoidable imperfection in the plug, or the moving of the cap. It is true, success

does now and then attend an operation of this kind; yet he was disposed to regard it as little more than temporary. A tooth in his own mouth proved that a pulp might die years after being filled, from very slight causes. The pulp sloughed some eight years after plugging; the tooth was healthy at the time the operation was performed, was slightly sensitive, but was not troublesome after it was filled during the eight years, up the time of the death of its pulp. At this time it became painful and extremely sensitive to the touch; upon the removal of the plug, the fangs were found filled with pus. He was inclined to question, in some instances, the formation of secondary dentine, as in this case the changes produced by the presence of the gold in the cavity, eight years after its introduction, destroyed the pulp. In diagnosing to ascertain the exposure of the pulp, usually employs the methods mentioned by Drs. McQuillen and Flagg. Having ascertained this fact, he proceeded to remove the decay of the tooth, cutting first around the point of exposure, and lastly removing the decay directly from the pulp as lightly as possible, yet having a definite portion exposed. Applies to this surface a very small piece of cotton, previously touched to the arsenious paste, which is formed of two parts of morphia to one of arsenic by weight, rubbed in with creosote to form a paste of the consistence of cream. This is left in the tooth, protected thoroughly from the secretions of the mouth, from twelve to twenty hours. On removing the preparation, usually finds the pulp partially alive; then, if not painful, which is usually the case, removes the bulbous portion of the pulp and places into the cavity a piece of cotton saturated with creosote, leaving this in the tooth usually about two days; at the expiration of which time, finds the pulp in a condition to be removed from the fangs; and with a barbed broach thrust to the apex of the fang, or as far as possible, with a rotary motion draws forth the dead pulp usually entire. After thus depriving the tooth of its devitalized pulp, introduces more creosote to allay any existing inflammatory action, leaving it in the tooth as long as circumstances require. The fangs being thus prepared, and the tooth free from pain and soreness, proceeds to plug them with gold; and to accomplish this, generally uses broaches in the following manner: having prepared or armed ten or twelve jeweler's fine broaches adapted to the size of the root canal to be plugged, by winding them with gold, dries the fang, carrying the broach thus armed to the very apex, being careful not to run it through the foramen of the root; with tweezers holds the gold *in situ*, and draws out the broach. If the gold thus introduced is the proper size, the foramina is closed at once, then with a delicate annealed steel follower or plugger, of a size easily passed into the fang, pushes the gold just introduced to one side, carrying it into the canal as far as possible. This gives space for another broach; thus he proceeds until the fang is filled. Plugs the main cavity, and burnishes, and seldom has any trouble after fangs are thus treated and

filled. Never thinks of removing a fang filling; and, indeed, it would be difficult to do so, if desired, after they are properly filled, unless it be the incisor roots. Occasionally finds certain fang canals so small that it is exceedingly difficult to pass into them the finest broach; in such cases did not apprehend any unhappy results if left unfilled.

Dr. McQuillen remarked, when we take into consideration that the merest scratch may induce an erysipelatous inflammation or a tetanus, that may eventuate in the death of the individual; and on the other hand, that in many instances two or three limbs have been severed from the body, and the patients survived the dreadful ordeal, we have presented not only striking evidences of the morbid tendencies of some, and the wonderful recuperative powers of others, but we have the most satisfactory proof that he must be, indeed, a wonderful exception to the rule, who can truly claim an invariable exemption from periostitis, alveolar abscesses, etc., as sequences to the treatment of the dental pulp. A quack might, but no physician would assert that his treatment of disease is uniformly successful. The surgeon candidly confesses, prior to commencing an amputation, the removal of a cataract, or performing any of the operations in surgery, great or small, that he can not say positively what the result will be; and as freely admits that his efforts sometimes proved unsuccessful. It would be well, therefore, for the dentist, operating as he does upon the same organisms, to take as broad a scope of observation, and imitate the candor that characterizes the medical and surgical practitioner.

Our successful efforts return, encourage, and often beget an overweening confidence in our own superiority and infallibility, and our failures, which if they were presented to our notice, might teach us a lesson, and induce a proper feeling of humility, pass into the hands of fellow-practitioners, who, if questioned with regard to such matters, perhaps would tell us a different tale from what we anticipate. He certainly could afford such information to some who had asserted in his presence that they never had failures. As an evidence that even when the greatest care is exercised by the most thorough and skillful, failures may occur, he had before him a member of the Association who had lost two or more teeth treated by one who, as a practitioner, justly ranked as high as any one living or dead that has been engaged in the practice of the profession. It is but just, however, to add that the patient labors under an apparent predisposition to erysipelatous inflammation, and that the operator never made the ridiculous assertion that he had no failures, but, on the contrary, frequently acknowledged that he was far from being immaculate.

While making such statements, he wished it to be distinctly understood that success, in nine cases out of ten, (if, indeed, the average is not a great deal higher,) is sufficient encouragement to convince him that the destruction of exposed pulps is a justifiable operation. And with regard to the

subsequent treatment, desired to be regarded as advocating the most thorough and radical fang filling, and opposed to the half-way measures advocated by some, of not filling the pulp cavities at all; and by others, of introducing the filling so loosely that it may be drawn out when necessary. He said this in all kindness to those gentlemen, acknowledging at the same time the *right* they possess to entertain, advocate, and pursue the mode of practice that may appear best in their own sight.

One thing is certain, however, that at a period when such diverse modes of practice are advocated, it is a duty all owe the profession, to express their honest sentiments on this subject, so that we may get at the truth. The church every few years deems it necessary, when the world appears to be going astray, to get up a revival; every four years we have a political revival, during which, as politicians would have us believe, over and again the Constitution has been saved. And if ever there was an occasion for a revival in dentistry, now is the time; and it is sincerely to be hoped that each and all will let the profession know where they stand on this all-important point.

Dr. Harris remarked that discoloration of a tooth was but the result of the removal of the pulp, and believed in all cases, it would ensue as a natural consequence. Many operators too hastily fill the pulp cavity before the vessels at the foramina are perfectly healed; as a consequence, serum is poured out and inflammation of the peridental membrane is the result. Is therefore in the habit of keeping the tooth under treatment several days preparatory to filling. He agreed with Dr. McQuillen, that the invariable success claimed by some is questionable, and believed every gentleman has failures, and no one could claim exemption. He also knew that pulps are destroyed under the impression that they are exposed, where a careful examination would prove that a thin covering of dentine still remained. Under such circumstances every effort should be made to preserve the vitality of the pulp. He regarded the perfect filling of the pulp cavity to be as essential as the compact filling of the cavity of decay.

Dr. Barker remarked that he could fully agree with the latter portion of Dr. Harris's remarks, regarding the perfect filling of fangs as necessary in all cases whenever it is practicable, and that the law that "nature abhors a vacuum" is as applicable to fang canals as in other parts of the economy; and believed that if not closed by the dental practitioner, they would be filled with serum, which would eventually decompose and be carried by endosmotic action into the tubuli, and induce discoloration of the teeth. He could not agree with Dr. Harris, that discoloration is due to the removal of the pulp, considering that if the fang canal and cavity of decay are compactly and solidly filled, no perceptible discoloration (except by reflected light) would ensue.

Dr. Fitch doubted the position that discoloration of a tooth was due to the loss of its pulp. He had seen many teeth in which the pulp

had been destroyed and fangs filled that remained for years without change in color; of course, there was a slight difference between living and partially dead dentine, but this difference is only perceptible to the dental eye. He thought discoloration was occasioned by foreign substances in the fang passing, by capillary attraction, into the tubuli; and thought that, an *assumption* which claimed that it arose from the partial or entire want of the nutritive element furnished by the sheath of vessels entering the foramen of the root, was untenable. He was well aware that the health and vitality of the tooth depended to a very considerable degree upon the normal or physiological condition of the pulp; and believed that much vital force was received from the periosteal membrane, by the endosmotic current through the cementum; hence the health of a tooth was in a sense maintained after the loss of its pulp.

In numerous instances, the fangs of teeth were so imperfectly cleansed, and so rudely filled, that they became the seat of highly offensive matter and gaseous collections, which permeated the dental tissue, coloring the tooth structure and perniciously affecting the surrounding structures, rendering the tooth not only offensive, but making its preservation a matter of great suffering. Every one present must be conscious of the truth of this statement, if they ever have had occasion to remove such a stopping—the effluvia emanating therefrom is too offensive and nauseating to institute a comparison. Has been quite successful in restoring the complexion of discolored teeth to a considerable extent, and would agree with Dr. Harris, that the health of a tooth after the loss of its pulp depends much upon anastomosis; but seriously questioned the statement of the gentleman, that discoloration of a tooth was directly due to the loss of its nerve pulp. [As this position has been assumed by him, the proof of its correctness remains with HIM.] He would answer the question propounded by the gentleman, “What object has nature in placing this sheath of blood-vessels and nerve in the fang?” That the primary function of the pulp is the formation of dentine or tooth bone, and the preservation of the tooth in a proper physiological condition, enabling it to perform in the most efficient manner its high functions.

Dr. Flagg did not consider that the discoloration of teeth was due to the removal of the pulp—wishing distinctly to be understood as referring to perceptible change of color—and did not deny that the richness of vitality was in a measure destroyed; but contended that if the operation was properly performed throughout, it would require the dental eye and reflected light to detect it. Considered it due, firstly, to imperfect applications; secondly, to imperfect preparation of cavities and canals; and, thirdly, to imperfect plugging of either cavities or canals, generally the latter. Has recently seen a case of thorough canal plugging of Dr. Plantou’s, which had stood, unchanged, the test of over twenty years. Stated that the removal of pulps was of much more than daily occurrence with

him, and that he had as yet no reason whatever to anticipate discoloration ; on the contrary, was constantly in the habit of effecting a restoration of color to teeth, with the conviction from experience, that it would be permanent. He referred to a class of discolorations, fortunately extremely rare, in which teeth, though the manipulation had been most perfect, would gradually assume a pinkish hue, and as years passed, would become red, and finally brownish. Regards the red discoloration which sometimes results from treatment of the pulp, presenting itself in the course of a few hours and passing away almost as rapidly, as a pathological phenomenon quite different. Had as yet been unable to remove satisfactorily the *gradual* discoloration referred to.

Dr. McQuillen said, the clear vital appearance presented by a perfectly healthy tooth is due to the translucent quality of the enamel and dentine, as well as the fact that the plasma circulating in the tubuli is nearly colorless. The ephemeral reddened condition that is occasionally attendant upon treatment of the pulp can only be accounted for by inferring that the red corpuscles have been ruptured, and the *hematine* or coloring matter (after mixing with the serum) is carried into the tubuli. This view certainly is more plausible than to suppose that the red corpuscles, which are the 1:3500 of an inch in diameter, could get into the tubuli, whose diameter is 1:10,000 of an inch, or $\frac{1}{3}$ less. With regard to the permanent discoloration that teeth sometimes present, varying from a deep indigo color up to a shade hardly appreciable from adjoining vital teeth, he believed that in the majority of cases, if not in all of them, it is owing to carelessness on the part of the operator, and the *liability* is greatly increased by *leaving the fangs unfilled*. At the same time, it must be borne in remembrance, that on account of the tubuli being relatively larger, there is a greater liability to discoloration in very young than in old teeth. The discoloration, that the gentlemen refer to, is, he believes, more *apparent than real*; there is *actually* no change in the color of the dentine ; for when the mouth-glass is placed under the tooth (the only way by which any difference can be detected,) the light reflected from it is prevented from passing through the translucent tooth substance by the opaque filling of gold which occupies the pulp cavity.

Dr. Buckingham remarked, that no one could hope to meet with complete success in all cases where the pulp was treated, as the inflammatory tendency in some constitutions was of such a character that the slightest wound would run into that state ; but where the person is perfectly healthy the pulp could in most cases be removed, and the tooth give no trouble. He considered that when discoloration occurred from bad treatment of the pulp, the natural color could not be restored ; and has noticed teeth that have been extracted, where one of the fangs would be very dark and the others of a natural color, with the periosteum living upon each. He should like to know what change takes place at the apex

of the fang. Are the foramina closed by an ossific deposit, or occupied by the remains of the pulp? He had seen a preparation of collodion and chloroform suggested as an additional protection to the pulp when it is covered by a thin septum of dentine, and considered it might be useful in some cases.

The subject of "Saliva" was chosen for next discussion.

EDITORIAL.

DENTAL EDUCATION.

It can hardly be regarded as an over-estimate to suppose that the yearly additions to the profession throughout the entire country does not fall far short of five hundred persons; of this number, a little over one-tenth only are graduates from the dental colleges. In alluding to this numerical difference, the object of this communication is not to institute an inquiry into the comparative merits of the two systems—private preceptorship and collegiate instruction—but, believing that the welfare and safety of the community and the advancement and elevation of the profession demands that the student should enjoy the advantages of both: the aim is to direct attention to deficiencies which should be corrected.

In Europe, from early childhood persons are destined to enter upon and educated for particular pursuits; and, whether fitted or not by natural qualifications for the profession or trade selected, they are expected to, and do, live and die in it. Such, however, is not in keeping with the genius of our country. The young and restless spirit here, having, in obedience to the will of parents, the force of extraneous circumstances, or more generally in accordance with its own inclinations, entered upon some avocation or other, and, after pursuing it for a certain time, discovers a want of fitness or congeniality for the pursuit, hesitates not about the propriety of changing; but, on the contrary, enters *boldly* upon some other calling, and failing in *that*, tries another, and another, until at last it finds itself in the position for which it *believes* it was intended. No profession or trade is exempt from this influence. And in dentistry, in particular, the number of practitioners is extremely small that have not at some period in life been engaged in other avocations. There are advantages and disadvantages connected with each of these.

One great disadvantage attendant upon the last, is the fact that at the very threshold of professional life, the student is too often subjected to great inconvenience from the want of preliminary instruction. Sometimes, misconceiving the true value of his previous attainments, or mistaking the bent of his genius, he enters upon the study of a science which, like the profession of medicine, demands above all a good education, sound and discriminating judgment, talent to acquire knowledge, memory to retain, tact to apply it, skillful manipulation in the performance

of operations, and that kind of moral ascendancy which inspires confidence in one's self and an almost implicit faith on the part of others.

That numbers of dental students have been admitted in the offices of their preceptors who were deficient in the most common branches of an English education, and that a proper inquiry into the fitness of young men to become students is, even now, seldom instituted, are positions which can scarcely be controverted.

In former periods, and in other countries, the time and expense may have been such as to preclude many from the advantages of an early education; but in our country, with the facilities now afforded by cheap books and free schools, an individual who attains to manhood without acquiring, in addition to the elementary branches of learning, a fair acquaintance with natural philosophy, chemistry, etc., and is content to remain so, possesses neither the aspirations, energy, or industry requisite to make him a thorough practitioner or a successful cultivator of dental science, and it would therefore be a kindness to him, as well as an act of justice to the public and the profession, to advise him to devote his energies in some other direction.

Preceptors sometimes fail to perform their duty on another point. Affording their students every facility, encouragement, and direction with regard to *mechanical*, and *occasional* opportunities to witness and manipulate in operative dentistry, they provide little or no means for acquiring a knowledge of the science of the profession. Possibly a few textbooks may be furnished, but no anatomical preparations, diagrams, or facilities for chemical manipulation. Even when these are afforded along with all of the most approved works, though fully competent to the task, the preceptor rarely institutes a regular series of examinations and explanations in the course of studies entered upon, but leaves the inexperienced mind of the student to regulate its own pursuits, and after a probation of a few months, or year at best, the student enters upon the practice of the profession only to find that he has yet to educate himself.

It may be said, in a general way, that it matters little how the student obtains his knowledge, provided only such knowledge is obtained; and though the disparity existing among students in their acquirements depends very much upon individual capacity, yet it is evident that much of this difference must depend upon the advantages afforded for study and improvement.

That there are many preceptors who in every respect faithfully discharge the duty they owe their students and the profession, and, so far as it is in the power of a single individual, eminently qualify them for practice, is without question; but the present advanced state of the profession makes it necessary that an attendance upon the curriculum of instruction in dental or medical colleges should be superadded even to the most thorough private preceptorship. Scattered as the profession is over a

wide extent of country, with many of its practitioners far removed from dental colleges, it may, in the existing state of things, be impossible for every student to enjoy the advantage of both systems; this can be remedied, however, by the establishment of schools in sections of the country that at present are not provided with them. In place of diminishing, as many may suppose, the attendance upon schools already in existence, this would—judging by the effect upon the medical schools—only serve to vastly increase the present number of matriculants; for, as we have already seen, *nine-tenths* of those who enter the profession obtain their knowledge from private preceptors alone.

The time may not have arrived yet for such a movement, but every one must admit that the interests of a great and growing profession demands that adequate preparation should be made for such contingencies, and that in accepting the position of instructors, whether as private preceptors or public teachers, it is a matter of very great moment, that those who enter upon the discharge of such a duty should not only engage in it *con amore*, but be deeply impressed with the fact that the twofold obligation they are under to the profession and community—first, as earnest, indefatigable students, and teachers, and second, as guardians of the honor of the former and the welfare of the latter—are no ordinary responsibilities.

As has been justly remarked by an eminent writer and teacher: "Doctrines and maxims, good or bad, flow abroad from a teacher as from a fountain, and his faulty lessons may become the indirect source of incalculable mischief and suffering to hundreds who never heard his name."* When viewed in this light, how necessary is it that those who accept such positions should be willing to sacrifice pleasure, time, and means in the preparation for, and faithful discharge of the duties incumbent upon them.

Lastly, far from indulging in the Utopian idea, that the newly-graduated student, whatever advantages he may have enjoyed, can be immediately transformed into the accomplished and skillful practitioner, it must be admitted that it is a matter of vital importance that the plans of instruction, the materials for illustration, and the periods of probation in private offices, as well as in colleges, should be such as will properly prepare him for the important occupation in which he seeks to engage.

J. H. M'Q.

REVIEW OF DENTAL LITERATURE AND ART.

BY J. H. M'QUILLEN, D.D.S.

NATATORIUM AND PHYSICAL INSTITUTE.—A pamphlet with the above title, advocating the establishment of a gymnasium in Philadelphia, to be conducted on scientific principles, by one perfectly familiar with the most desirable and beneficial mode of engaging in physical exercise, was re-

* Dr. Watson, "Practice of Medicine."

ceived some time back, and it was our intention to have presented, before this, a few extracts from an able Address, penned by that gifted medical writer, Dr. John Bell. In the course of his remarks on the deteriorating influence attendant upon city life, and the advantages flowing from a proper attention to exercise, he says:—

“Modern civilization, with all its wonderful applications of science and art to the increase of personal comfort and the promotion of social pleasures, tends, unfortunately, to a precocious development of both mind and body, unfavorable alike to vigor and duration. This tendency is most evident and progressive in the crowded population of cities, whose inhabitants, by the very circumstances in which they are placed, constantly sin against the natural laws established by the Creator for their well-being, and pay the penalties for their transgressions in their weakened frames and puny offspring. Deteriorating influences of this nature, continued through a few generations, would soon depopulate a city, but for the reinforcements which it is constantly receiving from the country. * * * *

“Of the primary causes which bring on premature decline and shorten life, the most conspicuous are a defective supply and impurity of air, and want of regular bodily exercise. Partial correctives are found by a limited number of the inhabitants of a city in their retiring to the country during the summer season, while others seek renovation in travel and visits to the sea-shore and to mineral springs. They who remain at home obtain limited relief in public squares, which are so many magazines for the supply of a pure air, and in daily walks and rides. But all these resources, notwithstanding their undoubted value, fall short of the wants, as they do of the ability, of the majority to procure them; and they fail to prevent and but imperfectly checks the incessant ‘wear and tear’ of town life, with its toils, its cares, and its anxieties. In doors, everywhere, by day, and still more by night, people suffer from a deficient supply of fresh and pure air, and from its vitiation by breathing, and the processes going on in the workshop and the factory, owing to defective ventilation. The deleterious operation of these causes is rendered much more efficient by the want of active exercise in the open air, and the constrained postures to which persons of all ages, from infancy to manhood, are subjected. That which is begun in the nursery is continued in the school-room, the study, the store, the shop, and the factory, and to such an extent that entire symmetry of frame and a natural and easy gait and carriage are as rare as if they were exclusive privileges, which could only be secured by the expenditure of much time, labor, and money.

*“Men round-shouldered, and women with more or less obliquity of the spine, or back-bone, make the rule instead of the exception. * **

“Associated with, and indeed a cause of this yielding of the spinal column or back-bone, is weakness of its own muscles, and of those which connect it with the haunches below and the chest and arms above. The muscles of the limbs and body at large, which are contractile and moving parts, participate in this weakness, and hence the slowness and languor of movements, and disinclination, with diminished ability to engage in locomotion and other exercises. *A little observation shows that the exercises and postures and most of the occupations of mankind are such as to call into action the muscles of one side of the body more than the other, and this one-sidedness becomes a general cause of the greatest and most universal deformity.* The exclusive use of the right arm, which is pref-

erably employed in nearly all the acts of life, whether these be the merely mechanical or others in which the intellect is more especially concerned, leads to deviation and deformity, chiefly toward the right shoulder. At school, the predominance of the right arm, by the exercise of its muscles, is out of all proportion, or rather bears no proportion at all to the use of those of the left arm. Thus, in writing, drawing, guitar-playing, harp-playing, and even in piano-forte playing, it is the right arm which is either exclusively or chiefly occupied. The muscles of the right arm act first on the shoulder-blade and the ribs which are connected with the spine; and these, in turn, pull the spine itself toward the right side, and thus cause the first curvature in that direction. In walking behind a person, it is very seldom that we see an equalized motion of the body; and if we look to the left foot, we shall find that the tread is not so firm upon it; that the toe is not so much turned out as in the right, and that a greater push is made with it. From the peculiar form of woman, and the elasticity of her step, resulting more from the motion of the ankle than the haunches, the defect of the left foot, when it exists, is more apparent in her gait.

"REMEDIES.—Do not these great and progressive evils call for early and continued means of prevention, and, in their first stages, of cure? How shall rectification of obliquity and restoration of strength be procured? We believe that we can place the means of relief and cure at the disposal of all classes of our fellow-citizens in the matured plans, to the outlines of which we now invite their attention. We promise no panacea, boast of no discovery of a new substance or subtle principle which shall penetrate through the entire frame, revolutionize all the functions, expel disease, and bring back the golden age. Leaving such promises to deluding empirics, we confine ourselves to the use of those material agents and contrivances which have been found to be efficient in all countries and in all ages, whenever they have been fully and regularly tried. Their use is suggested by nature and guided by physiology, and their efficacy proved by long experience. *They consist of various exercises systematically and perseveringly continued, with due adaptation to age, sex, constitution, and the particular state of the individual, together with the other hygienic aids supplied in swimming and the different kinds of private bathing.* * * * * *

"*Gymnastics.*—The chief and the primary conditions for success, both in prevention and restoration, is to furnish the scholar or the invalid, as the case may be, opportunity and encouragement for performing that which every young being would do when left free to yield to its instinctive impulses, viz., motion of the limbs in all directions and equal exercise of the two sides of the body. *These would soon restore the strength and correct any slight deviation from symmetry.* * * * *

"Gymnastic training, in its full and comprehensive sense, has been appropriately called an apprenticeship to all the callings and professions, by its giving greater aptitude to the discharge of each of them. It is capable of benefiting alike the poor and the rich; to the former of whom it gives greater powers of labor and endurance, while the latter are prevented by it from sinking into indolence and languor, and their too common accompaniments of *ennui* and want of definite objects of thought and action. The physical acts on the moral nature, and the strength, agility, suppleness, and quickness of movement gained for the former, impart to the accomplished gymnast courage, intrepidity, self-reliance, and perseverance, which belong to the latter. The senses and intellect are strengthened, at

the same time, by the habit of measuring with the eye the relative distances and the height and size of the objects which are met with, in running, jumping, and climbing, and in exercises compounded of these. With quickness of perception, thus gained, are associated precision, promptness, and finish, which are usefully applied to matters of more importance in the out-door relations of the gymnast. In ancient Greece and Rome, gymnasia were instituted and encouraged as military schools, to prepare the citizen to become a soldier. To a very great degree they constituted also schools for health. At the present time we shall invert the order of the objects aimed at, by giving health the precedence.

"The active exercises of the gymnasium not only impart fullness and strength to the muscular or moving organs of the human frame, but they improve digestion, quicken the circulation of the blood, expand the chest, and, by increasing its capacity, enable the lungs to receive more air, and thus to purify the blood, which is afterwards distributed, by the agency of the heart, to every part of the body." * * * *

When it is remembered that no pursuit is more arduous and confining than the profession of dentistry, and that too many of its faithful practitioners, from early in the morning until late in the afternoon, without intermission, are not only inhaling the vitiated atmosphere of close rooms, but assume and maintain, for hours at a time, attitudes alike uncomfortable and calculated to induce physical deformity, (the left arm resting on the head of the patient, in a passive but tiresome position, the body thrown in front of the patient, far beyond the centre of gravitation, and only prevented from falling by the support obtained at the pelvis by resting against the arm of the chair, and the constant strain made by the muscles of the back, permitting, in addition, the weight of the body to fall principally upon one, in place of both feet;) and, added to this, the fixed and continuous gaze upon bright objects, such as gold fillings, so trying to the eyes, are each and all, singly and combined, so many deteriorating influences sapping the physical and mental energies and shortening the days of those who do not seek the means best calculated to counteract them.

These are to be found alone in change of air and an indulgence in the kind of exercise which experience shall prove the best adapted to individual cases, for it is folly to advise the same kind of exercise for all. One may engage in active and violent exercises with advantage, which would be detrimental to the health and well-being of others; active exercise, such as leaping, rowing, fencing, horseback, etc., is proper and necessary for the vigorous and strong; but to one whose constitution is naturally weak, and who feels exhausted by the professional labors of the day, and who has not trained himself to engage regularly in physical exercise, that he may not injure himself, should enter upon such with great care. The passive and gentle exercise afforded by a carriage, at the end of the day's labor, will in many cases prove serviceable, but it should not be confined to that alone.

As Prof. Jackson truly says, "much has been said about the advantage of *exercise*, and an excellent treatise might very properly be written upon the advantages of *rest*." When the body is fatigued by the labors of the day, there is no question, that "nature's sweet restorer," rest, should be sought; but those who wish to possess a clear head, a strong arm, and steady hand, and desire to live to a good old age in the possession of health and a vigorous intellect, must engage regularly in some kind of physical exercise.

Considerations such as these have induced us, from boyhood up, to seek in the gymnasium, and, better still, in the attractive and natural kind of exercise in the open air, attendant upon walking, rowing, swimming, and on horseback, to counteract the disadvantages of town life; and thus can add the testimony of years of experience, that such exercises, within proper bounds, is conducive alike to health of body and mind.

In conclusion, we would suggest that, in selecting an operating chair, too much attention cannot be paid by the dentist in making choice of one that shall be least open to objection, so far as the comfort of the patient and operator is concerned. It should be sufficiently large, and so arranged as to protect the person of the patient from contact with the operator; and yet it should not be so wide, that he is compelled to lean over so far that the effort is not only fatiguing, but prevents an easy play of the arm in filling. It should also be sufficiently elevated to prevent the unnecessary and tiresome stooping one is subjected to when operating upon a patient seated in a low chair.

Proper attention should also be paid to the ventilation of the operating-rooms by the introduction of registers near the ceilings, and where this is not practicable, by throwing open the windows (as suggested by a friend) for a few moments immediately after one patient has left, and before another occupies the chair.

As in the continuous and ever-recurring round of duties, (attendant upon a practice of any size,) toward the latter part of the day the operator is apt to have a slight feeling of fatigue, and possibly drowsiness, stealing over him, particularly after a hearty dinner, an application of cold water to the head will prove refreshing and stimulating, and enable him to discharge the remaining duties in a state far removed from the semi-superannuated condition of being half-awake and half-asleep, and not fit for anything in particular.

BRITISH JOURNAL OF DENTAL SCIENCE.

At a meeting of the Odontological Society, held May seventh, Mr. Mummery presented the following paper, which will be recognized as a continuation of a subject on which he had previously addressed the same body, and which was republished in former numbers of this magazine:—

"We will now turn our attention to the largest of all existing terrestrial animals, the elephant, a genus which forms the only living type of that extensive family of mammiferous quadrupeds which once peopled a large portion of the earth's surface—the true proboscideans.

"The dentition of this enormous animal is very remarkable. There are no canines in either maxilla, and the lower incisors are also absent, while the immense tusks (identified as incisors by their implantation in the intermaxillary bones) necessarily require alveoli of great size and depth. The upper jaw is thus rendered so high, and the nasal bones are so much shortened, that in the skeleton the nostrils are situated in the upper part of the face, although in the living animal they are prolonged into that remarkable organ the proboscis. The tusks are preceded by a deciduous pair not exceeding two inches in length, the bases of which are absorbed toward the end of the second year, and the teeth fall out.

"The permanent tusks appear a few weeks afterwards; the immense hollow base being occupied by a persistent formative pulp, supplied abundantly with blood-vessels; and as no antagonists are provided to wear them down, as in the base of the rodents, they attain an immense magnitude and weight. Instances are recorded in which a pair of tusks has weighed more than three hundred pounds, and the annual importation of ivory into Great Britain alone may be estimated at about one million pounds; which, taking the average weight of a tusk at sixty pounds, would require the slaughter of 8333 elephants. Of the two existing species of elephant, the African is provided with the most massive tusks, which are of nearly the same size in both sexes; while in the Indian species the tusks of the female do not attain equal magnitude to those of the male; and in the Ceylon variety not one elephant in a hundred is found with tusks, the few that possess them being exclusively males; nearly all, however, are provided with the stunted teeth called tushes, about ten or twelve inches in length, and one or two in diameter. The old naturalists maintain that the elephant periodically sheds his tusks. Ælian says he drops them once in ten years; and Pliny repeats the story, adding that, when dropped, the elephants hide them under ground; whence Shaw says, in his 'Zoology,' 'they are frequently found in the woods, and exported from Africa;' and Sir W. Jardine, in the 'Naturalist Library,' says, 'the tusks are shed about the twelfth or thirteenth year.' This is erroneous: after losing the first pair, or 'milk tusks,' (which drop in consequence of the absorption of their roots, when the animal is extremely young,) the second pair acquire their full size, and become the 'permanent tusks,' which are never shed. Elephant tusks are not unfrequently found in which balls of iron or lead are imbedded in the solid ivory, a phenomenon which is thus explained: 'The ball probably has penetrated the thin parietes of the socket, and the wall of the wide pulp cavity forming the basal extremity of the tusk. If the projectile force be then spent, the ball gravitates to the opposite and lower side of the pulp cavity. The presence of the foreign body exciting inflammation of the pulp, an irregular course of calcification ensues, which results in the deposition around the ball of a certain thickness of osteodentine. The pulp then resuming its healthy state and functions, coats the surface of the inclosing mass of osteodentine, together with the rest of the conical cavity into which that mass projects, with layers of normal ivory, closing the breach in the thin parietes of the pulp cavity by which the ball entered; and as the growth of the tusk proceeds, the ball so inclosed is carried forward into the

solidified part of the tusk. The occurrence of a spear-head in an elephant's tusk may be similarly accounted for. The long axis of the weapon corresponding to that of the cavity, and no opening for its admission being discoverable, it is evident that no human strength could have driven such a body through solid ivory.' From the highly vascular structure of the pulp, the tusks are slightly movable in the socket, and occasionally, as in the case of the hippopotamus, through irregular pressure on the alveolus, the tusks take a spiral or other distorted form. We hear people speak of being driven nearly mad with toothache; but instances are recorded in which the immensely large vascular pulp of the elephant has been the seat of violent inflammation, probably following mechanical injury, and ungovernable madness has been the result. A painfully interesting account is given in Hone's 'Every-Day Book,' of the destruction of a remarkably intelligent elephant at Exeter Change, in the year 1826. The animal was attacked by paroxysms of madness, which at length compelled its owner to obtain the aid of a file of riflemen to put it to death. The skeleton of the unfortunate animal is set up in the Hunterian Museum, and the skull bears marks of the many ineffectual attempts to penetrate the brain, owing to the peculiar construction of the skull, to which I shall shortly refer. In an adjoining glass case is seen the hollow basal extremity of the left tusk, which shows, by the irregular deposit of osteodentine in the pulp cavity, and the absorption of part of its walls, that the pulp had been the seat of violent and repeated attacks of inflammation; a condition which must have aggravated, if it did not originate, the uncontrollable state of the animal.

"The succession of the molar teeth differs greatly from that of the other mammals. We observed that the temporary molars are usually replaced by permanent teeth in the vertical direction, called false molars, corresponding to the human bicuspidates. No such arrangement is found in the elephant; but in the whole of the molar teeth, including those earliest developed, the succession takes place from behind forward, after the manner of the true molars in the other animals, or the permanent molars in the human subject. The development of these teeth has been so admirably explained by Professor Owen, that I shall do well to quote his clear and comprehensive description: 'The whole series of molar teeth succeed each other from behind forward, moving not in a right line, but in the arc of a circle. The position of the growing tooth in the closed alveolus is almost at right angles with that of the molar in use; the grinding surface being at first directed backward in the upper jaw, and forward in the lower jaw, and brought by the revolving course into a horizontal line in both jaws, so that they oppose each other when developed for use. The bony plate forming the sockets is more than usually distinct from the body of the maxillary, and participates in this revolving course, advancing forward with the teeth. The partition between the tooth in use and its successor is perforated near the middle, and in its progress forward the part next the grinding surface is first absorbed, the rest disappearing with the absorption of the roots of the preceding grinder. From this mode of advance, the upper molars are convex, and the lower concave, from behind forward.' The first molar, cut a fortnight after birth, is shed at two years old. Previously to this time the second molar has been for some time in use, and is in turn shed at the end of the fifth year. The third molar attains its full growth between the third and sixth, and is shed at the ninth year. Professor Owen regards these three as the representatives of

the deciduous molars of the other animals. The fourth, fifth, and sixth molars respectively commence to penetrate the gum in the sixth, twentieth, and fiftieth year, and the two former are shed in the twenty-fifth and sixtieth years, while the sixth molar is supposed to remain during the continuation of the animal's existence. The perfection of a grinding apparatus is attained in the internal structure of these molar teeth, the three constituent elements, which we have already noticed in the other graminivorous mammals, being developed in a remarkably distinct manner. A molar tooth is composed of a series of transverse perpendicular plates, each of which consists of a central table of dentine, invested by a layer of enamel; and these separate plates are at length soldered together by the filling up of the spaces with the cement, which retains the several plates in due relative position, until, by the further development of their bases, they unite to form a solid mass of dentine in the more deeply implanted portion of the tooth.

"The appropriate name of cement, bestowed on this third element of the teeth by Baron Cuvier, is thus seen to be peculiarly applicable to the molars of the elephant.

"Each constituent plate, moreover, consists of a series of slender, conical columns, arranged transversely across the tooth, their bases gradually expanding until these columns or denticuli are blended together, and form a flat plate, with wrinkled sides, giving the undulating pattern to the line of enamel when the surface of the tooth is worn. These detached plates, prior to their consolidation by the cement, offer a rude resemblance to a hand, and have been described, when found in a fossil state, as the petrified hands of a monkey.

"As the surface of the teeth is worn in mastication, the process of enamel, resisting attrition by their superior hardness, form prominent ridges on the grinding surface, while the dentine, and especially the cement, are more rapidly worn away, a structure admirably adapted for bruising and communicating the woody fibre and other hard substances which constitute the elephant's food. The molar teeth progressively increase in size and the number of constituent plates, the first molar consisting of four plates and the sixth of about twenty-five.

"From the peculiar mode of dentition, the front portion of a tooth has cut the gum, and is employed in mastication before the back part is completely formed, even before some of the posterior denticles have been consolidated; and the back part of the tooth does not come into use until the anterior portion has been worn down nearly to the fang. When at length the complex molar has become useless for grinding, the roots are absorbed, and, aided by the pressure of the succeeding tooth, it is finally shed. It may, therefore, be said that the elephant cuts a series of *sets of teeth*, as the old ones are worn out, an arrangement which might be considered very convenient by many members of the human family.

"In the Indian elephant, the grinding surfaces of the dental plates represent flattened ovals placed across the tooth; but in the African species, these columns form in section a series of lozenges touching each other along the centre of the tooth.

"That wonderful organ, the proboscis, demands a passing notice. From the shortness of the animal's neck and the enormous weight of the tusks, the creature would find difficulty in cropping its food, were it not for the possession of this specially adapted organ, composed of multitudes of small muscles (estimated by Baron Cuvier at forty thousand,) so

variously interlaced as to bestow on it the most complicated powers of mobility, in all the varieties of extension and contraction. It enables the animal, at will, to exert the enormous strength of a limb or to execute the most delicate feats of finger-like touch. Endowed with exquisite sensibility combined with power, this organ, at the will of the animal, will uproot a lofty tree or crop tender herbage, will raise heavy cannon or pick up a pin; and its great length supplies the place of the long, flexible neck of the ruminants, which would have been incompatible with the support of the large head and weighty tusks. All the processes of the cervical vertebræ are strongly developed, and the spinous processes of the dorsal vertebræ are lengthened and powerful. A glance at the head of an elephant will show the thickness and strength of the trunk at its attachment, and the massy, arched bones of the face and thick muscular neck are admirably adapted for supporting and working this powerful and wonderful instrument. The great development of the diploë, which we noticed in the babyroussa, attains a surprising perfection in the elephant.

"The external surface of the cranium is enormously extended, but the actual cerebral case bears a very small proportion to the skull, the space between the outer and inner table being filled by the extensive mass of vertical cells of the diploë, which are filled with air from the Eustachian tubes. By this arrangement the external surface of the cranium is extended for the insertion of the powerful muscles and ligaments required to support so heavy a mass of molar teeth, tusks, and proboscis, without adding materially to the weight of the head. * * * * *

"When we regard the comparatively limited number of existing British mammals, we can hardly conceive the idea that the gigantic northern elephant, extinct for untold ages, once forced his way through the tangled forests of our land, and was fitted, with his covering of long hair and closely felted wool, to sustain the rigors of a still more northern climate. The teeth of *Elephas primigenius* are found scattered throughout nearly the whole of Europe, from the shores of the Mediterranean to those of the Icy Sea. As they are not confined to the continent, but are found in the British islands, and even in Iceland, distant as that island is from the European shores, we may form some faint idea of the immense cycle of geologic changes which must have taken place since the period when the elephant was a member of the British Fauna. The tusks of the mammoth (as the animal is also called) are not unfrequently dredged up from the tertiary beds of a portion of the British Channel; and specimens have come under my notice which have been brought into the port of Dover by fishermen who had so obtained them. The molar teeth are found in many localities, as in the superficial beds overlying the chalk on the coast of Kent, and especially in the tertiary strata known as the 'Norfolk Crag.' The specimens on the table from the latter formation supply another illustration of the immeasurably long periods which have elapsed since this comparatively recent geological epoch. One of the teeth, imbedded in a cliff of compact strata, is as sharp in its outlines as at the animal's death, while the other specimens have been rolled into boulders by the action of the sea on that more ancient cliff, and yet the gravel-bed itself containing these remains was raised, long before the human period, far above the present level of the ocean. The tusks of the extinct European elephant are very much more curved than those of the existing species, and sometimes are found with a curvature almost equal-

ing that of the ram's horn. The tusks are so numerous in Siberia, and are in such excellent preservation, that they form an article of extensive commerce as ivory. Perhaps few discoveries of the remains of an extinct animal have equaled in interest the fossil elephant, which was found frozen up in an icy tomb on the coast of Siberia. In the year 1799, a Tungusian fisherman observed a strange, shapeless mass projecting from an ice-cliff, near the mouth of the River Lena, in the north of Siberia, the nature of which he did not understand, and which was so high in the ice-cliff as to be beyond his reach. In consequence of the ice melting, he discovered in the following summer that it was the frozen carcass of an enormous animal, which at length became entirely disengaged, and fell down from the ice-crag upon a sand-bank. The fisherman carried away and sold the tusks, and more than thirty pounds' weight of the hair and bristles were collected. The head was still covered by the skin, the pupil of the eye was distinguishable, and the brain remained within the skull, while a long, shaggy mane hung from the neck. But the most striking feature in the account is the fact, that the fishermen in the neighborhood carried away large quantities of this elephant's flesh to feed their dogs, probably the only instance on record in which the remains of an animal (extinct long anterior to the creation of man) have been thus preserved unchanged through so vast a period of time, as to be applied to the sustenance of other animals contemporary with ourselves."

DENTAL ENTERPRISE—MAY.

"PARTIAL IMPRESSIONS IN PLASTER. PROF. AUSTIN.—Take first an impression in wax in an ordinary britannia cup, and pour into it plaster for making the model. In a half hour the model may be set into warm (100° Fahrenheit) water until the wax becomes thoroughly softened; it can then be drawn without breaking off any teeth. Upon this mould a plate of gutta-percha one-eighth or one-tenth of an inch thick, larger than the piece is intended to be, running up against the *inside* of the teeth, but not passing between the teeth in those spaces where only one or two teeth are wanting. Take a second piece of the still soft gutta-percha, make its surface adhesive by *dry* heat and fasten it from side to side across the centre of the plate while still upon the model; this answers the double purpose of a stiffener and a handle for removal of the impression. This plate should fit loosely, so as to go off and on with ease; if the contraction of gutta-percha is not sufficient, the sides must be pressed together while still soft. The fourth of a line between the plate and the teeth is sufficient for this purpose.

"If the model is saturated with water, there is no danger of the gutta-percha adhering to it. This is a much better preventive than the use of oil. After trimming the plate with scissors, while still warm and flexible it should be reapplied to the model. It should run nearly or quite to the edges of crowns of the teeth, except of those teeth on either side of a space to be supplied; in which case it should project a little beyond the teeth and extend across the *inner* side of such space, (if no more than two teeth,) for reasons presently given. Where a space of three or more teeth occurs, carry the gutta-percha over the outside of the alveolus, fitting loosely so as to leave a slight space for the plaster, and not coming too closely against the teeth on either side of the space.

"The next step is to coat the surface toward the model with a layer of adherent cotton or woolen fibre. This may be done by first brushing over

a layer of stiff sandarach, mastic, or copal varnish, and then pressing against it a surplus of raw cotton or wool. The two first, being spirit varnishes, have the advantage of drying rapidly, the latter is perhaps more adhesive. Shellac varnish will not answer, because not adhesive; nor gum-arabic, because the moist plaster would soften it again. Another convenient method is to hold the surface over a flame, and quickly press on the cotton while thus made adhesive. It must be quickly done, else the plate will become too much softened, and should be reapplied to the model to correct any change of shape. Pick off the surplus non-adherent fibres, and then, after trying the plate in the mouth to be certain that it is correct, proceed with the impression.

"Mix plaster and apply it to the plate according to previous directions; taking the precaution to rub some (with a small brush, feather, or the finger) over the roof of the mouth and around the inside of the teeth, especially between contiguous teeth, when it is desired to have accurately the impression of these small spaces. Introduce carefully, and press gently with one finger until the plaster sets. The patient should be placed in a chair having a head-rest, so as to give support during the subsequent steps. The head need not be thrown forward as the plaster sets, unless an excess has been used and is likely to drop upon the tongue.

"When the plaster is firm enough to keep its place without assistance of the finger, take an excavator or gum-lancet and with extreme carefulness trim off any excess of plaster from the sides of the teeth adjoining the spaces, also from the edges and outside of other teeth, removing with the aid of some cotton or the fringes of a napkin, all loose particles of plaster. The extent of this trimming of the plaster will depend much upon the relative position of the teeth to each other; the rule being to cut away the plaster from all accessible places where, from under-cutting or dovetailing, it will either break off or offer serious impediment to the removal of the impression. Should the bicuspid and molars of each side incline inward, as often happens, this presents a difficulty which cannot be thus overcome. If it is slight, the plate made as above described will yield sufficiently to permit removal, and return again to its shape; but if very decided, then the cross-piece of gutta-percha must be shaped so as to permit a corresponding degree of pliancy, and yet be stiff enough to guard against a permanent bending of the plate.

"Let me pause here, while the impression is still in the mouth, to call your attention to what has been thus far accomplished, with the 'how and why.' An impression has been taken of the inside surfaces of the teeth and of the gums, as far only in the narrow spaces for one and two teeth, as the inside margin of alveolus, but running over to the outside in the larger spaces. It is perfectly accurate, as only plaster can make it. It will not shrink as gutta-percha would, nor 'drag' around the necks of the teeth as wax. The elastic nature of the cup permits the slight yielding as it is withdrawn, while the cotton fibre will prevent the fractured piece or pieces of the non-elastic plaster being displaced. The impression being as yet incomplete can be withdrawn without violence or injury, which could not be done in the majority of partial cases if the plaster were continued around and in front of the teeth. It only remains to complete the impression at those points which the plaster does not cover.

"This must be done before any attempt is made to loosen the plaster impression. Behind each space of one or two teeth, and projecting above the teeth, is seen the gutta-percha plate covered more or less with plaster.

Take now an impression of this part of the plate, of the gum, and of the front and the sides of the teeth by carefully pressing a small piece of wax into the space, then remove it with utmost caution to avoid changing its shape. If between this and the next space there is only one tooth, it will be better to leave the first wax in place while taking this second impression, which must be the first one removed, since it will in part overlap the other. In cases where only two or three teeth remain, with wide spaces between, a small wax impression is taken immediately over the tooth, lapping upon the gutta-percha on either side. If the wax is too hard it will not take an accurate impression, and if too soft it will change its shape too easily in removing it. You will find it a very good plan to take a small lump slightly warmed and rather firm, and soften the surface by dipping in warm water. Gutta-percha does not answer well for this purpose.

"The next step is to remove the plaster impression. If it offers any resistance, insert a curved excavator in one side of the gutta-percha cross-strip, and with this draw it downward with a to-and-fro movement, guarding the hand so that it may not come away with a sudden jerk. Varnish the impression with a thin layer of sandarach varnish, and then adjust the wax pieces to their respective positions, fastening each with a few drops of melted wax. The model made from an impression thus taken will prove an exact fac-simile of the parts to which plate and teeth are to be fitted. But I must repeat what I have before said to you, that the nicest manipulation is necessary to success, especially in four points: First, the trimming of the plaster while in the mouth before applying the wax; second, the removal of the wax pieces so as not to change their shape; third, the removal of the plaster impressions; fourth, the readjustment of the wax pieces. If you are incurably clumsy or hasty, I advise you not to hope much from methods which will repay only the careful manipulator."

THE VULCANITE—MAY.

THE editor and publisher, in the prospectus presented in the first number of this magazine, states that it is his intention to devote its pages mainly to "improvements in *artificial dentures*, appliances for correcting irregularities of the teeth, and dental mechanics generally." The principal part of this number is devoted to matters relating to the *Goodyear Patents*, and the interests of the American Hard Rubber Company. Several valuable papers on metallurgy and dental mechanics are promised for subsequent numbers.

It will be found by the following, that another effort has been made to establish a local society in New York, and it is sincerely to be hoped that it may prove a permanent and useful organization, and eventually induce that *esprit de corps* which will enable from twenty to thirty practitioners to meet together at short notice and upon the most friendly terms, as they have been enabled to do for years in Philadelphia.

"NEW YORK SOCIETY OF DENTAL SURGEONS.—A meeting of the dentists of New York and vicinity was held at the Cooper Institute, on the evening of March thirteenth, at which preliminary steps were taken for the formation of a City Association. At subsequent meetings, a constitution and code of by-laws were adopted, and the following named gentlemen elected officers for the ensuing year:—

"President, A. McIlroy; 1st Vice-President, F. H. Clark; 2d Vice-President, T. H. Burras; Rec. Secretary, E. C. Rushmore; Cor. Secretary, B. W. Franklin; Treasurer, James T. Stratton; Librarian, John Allen."

THE NEW YORK DENTAL JOURNAL—APRIL.

THE management of this journal passes, after this number, into the hands of W. B. Roberts. The following obituary on DR. ALVAN BLAKESLY is taken from it:—

"It becomes our painful duty to record the death of Dr. Alvan Blakesly, of Utica, N. Y. The circumstances attending his death are of the most melancholy character. As near as we are able to learn, Dr. Blakesly left Utica about the middle of last month to recuperate his health, his system having become debilitated by constant application to business. His physician and numerous friends advised him to go South for a short time, in order, if possible, to regain his health. He stopped at a friend's a short time in this city, expressing a desire that no one should know of his being here, giving his reason that he was too unwell to see them. He took passage in one of the Savannah steamers, in company with an acquaintance of his from Utica; and, on or before their arrival at Savannah, Dr. Blakesly was missing, it being believed that he had fallen overboard and was drowned. The circumstances connected with his mysterious disappearance from the decks of that steamer may forever remain a mystery to man; but his many virtues, his companionable and gentlemanly deportment, and his efforts to elevate his profession by friendly intercourse, will be remembered by many who will ever cherish for his name the fondest recollections. It was to Dr. Blakesly's efforts mainly that crystal gold and crystal gold-foil were introduced to the profession. He was among the very best operators in this country, having but few equals. The mechanical department of his business was superintended by himself, he being a finished mechanical manipulator, taking great pride in excelling in every department of his profession. He was among our oldest practitioners, having been in successful practice for about thirty-five years. It had been our good fortune to enjoy his acquaintance for the past twenty years; and, notwithstanding much of that time his health was but indifferent, yet, under all the depressing influences of ill health and a highly susceptible temperament, aggravated by the nature of his physical derangements, he habitually maintained his peculiar urbanity of manner, and courteous and gentlemanly bearing."

SOLUTION OF THE PERCHLORIDE OF IRON.—At the suggestion of a friend, we have tried this article with decided advantage, in several cases, when troubled with hæmorrhage from the gum, attendant upon the excavation of decay from cavities running down to or below the necks of the teeth. Applying a small pledget of cotton, saturated with the preparation, to the bleeding surface, the hæmorrhage is completely arrested, and the operation of filling can be effected at once. As this is one of the most powerful astringents in the materia medica, both when administered internally and externally, it should be had recourse to in profuse hæmorrhage following the extraction of teeth. Several practitioners have already testified to its value under such circumstances.

PERISCOPE OF MEDICAL AND GENERAL SCIENCE IN THEIR RELATIONS TO DENTISTRY.

BY GEO. J. ZIEGLER, M.D.

Nitrous Oxide—its Properties and Applications.—Among other events of pre-eminent importance, the present era has seen the realization of that long dream of the past for a practical method of speedily producing general insensibility in order to obviate pain and suffering, and facilitate those mutilations of the animal organism which are unhappily so frequently necessary. The practical exposition of this great thought of the past in the discovery of the means for the production of that state of insensibility now known as anæsthesia, affords a striking illustration of the truth of the proverb that the dreams of one age become the realities of another. The general history of the development of this grand idea, from its original conception to its final culmination and practical demonstration, shows how gradually but surely knowledge progresses from one point to another through successive periods of time. All honor, then, to those who conceived the idea and those who perfected this noble discovery of anæsthesia! That to Dr. Horace Wells belongs the credit of the practical exposition of this great truth there is now but little doubt, yet it must be admitted that he was unfortunate in the selection of the particular agent—nitrous oxide—for its experimental illustration. For, notwithstanding the general belief upon the subject founded mainly upon his experiments, it is very doubtful whether this agent will produce true anæsthesia at all—the general experience of those who have experimented with it most largely being in opposition to this view. This opinion is sustained by the fact that, notwithstanding the peculiar effects of the laughing-gas upon the human system, led Sir Humphrey Davy to suggest that “as nitrous oxide, in its *extensive operation, appears capable of destroying pain*, it may probably be used with advantage during surgical operations in which no great effusion of blood takes place;” yet they were not sufficiently striking in this respect to induce him to attempt any such practical application of his thought. This was contrary to his usual practice, for he was ever alive to the slightest opportunity for a new discovery. That the nitrous oxide does produce a high degree of pleasurable excitement, during which the mind may be so entranced as to become temporarily indifferent to, or even unconscious of, impressions made upon the organism, there is little doubt; but that it reduces the cerebro-spinal or general nervous system to a state of insensibility like that produced by those representative anæsthetics, chloroform and ether, is contrary to general experience. Indeed, this seems to prove that its influence upon the animal economy is directly opposite and antagonistic to that of such agents. In reality it differs therefrom not only in properties, but also in constitution; for they are composed largely of the elements hydrogen and carbon, while its sole and exclusive constituents are oxygen and nitrogen. Moreover, a very general analysis of its physiological properties and therapeutical influences will also show that it differs as widely in these respects from the well-recognized anæsthetics as it does in constitution. Thus, for instance, in the case of chloroform: this directly prevents aeration of the blood, if

it does not also deoxidize that fluid, depresses the cerebral and general nervous system, causes relaxation of the muscular and other contractile tissues, paralyzes the heart, and thus produces death,—its tendency being, in fact, to depress the vital energies and destroy life by direct and positive sedation. Ether, on the other hand, is primarily somewhat stimulant to the brain and nervous system, less immediately active in arresting oxidation of the blood, and in producing relaxation, though ultimately depressing and destructive, much in the same way as its congener. These agents, therefore, act by preventing arterialization of the blood, depressing the nervous system, checking general cell and nutritive action, and prostrating the vital energies. Hence the process of anæsthetization is a process of devitalization, and the anæsthetic condition a state of suspended animation artificially produced; the truth of which is demonstrated by the fact that this approximate or partial, often proceeds, notwithstanding the utmost care, to complete and absolute death. These agents are therefore positive and powerful sedatives.

Between the constitution and properties of the respective agents just considered in common with all the other well-known sedatives and anæsthetics and the nitrous oxide there is a wide difference. Thus, for instance, instead of producing sedation and insensibility, it, on the contrary, usually augments general and special sensibility, both during and after its administration. Moreover, instead of retarding, it increases both directly and indirectly, the oxidation of the blood, stimulates the cerebral, nervous, and muscular organs, promotes contractility and general cell and vital action, and thus invigorates the whole system and acts as a true tonic. Its effects in these respects are, indeed, so well marked as to place it in direct antagonism to the various sedatives and render it very efficient in not only counteracting their effects by stimulation, but also to some extent to act as an antidote thereto. My own observation, experiments, and experience have taught me that this agent—variously designated nitrous oxide, protoxide of nitrogen, or laughing-gas—is a direct, potent, and permanent chemico-organic, arterial, nervous, cerebral, and general stimulant, diuretic, aphrodisiac, and antitoxic; and is thus a valuable tonic, secernent, resolvent, alterative, antidote, etc. etc.

These remarks might be greatly extended and much evidence presented in support of the views advanced, but as that would lead to a discussion of many points not so pertinent to the objects of this journal, we refer those interested to Sir Humphrey Davy's work on Nitrous Oxide, and to the several essays by the writer, respectively entitled *Zoo-adynamia*; *Antidotal Applications of Nitrous Oxide*, *Boston Medical and Surgical Journal*, vol. xlv., No. 14; *Anæmatisis—its Consequences, Prevention, and Treatment*, *ibid.* vol. xlv., Nos. 22 and 23; *Experimental Investigations on the Antidotal and Revivifying Properties of Nitrous Oxide*, *ibid.*, vol. xlvii., No. 19; *Hæmatisis—its Natural and Artificial Induction*, *ibid.*, vol. xlix., Nos. 3, 4, 5, and 6; *Glucosis*, *ibid.*, vol. l., No. 11.

“*Study of the Parotid Gland.* By M. CLAUDE BERNARD.—We have continued the series of experiments which we commenced on the motor nerve of the parotid gland. Our observations on it have been made without much difficulty on the present occasion—the natural consequence of our having previously discovered by dissection, during our first experiment, that it is a branch of the auriculo-temporal nerve. Now, you are perfectly aware that this branch of the fifth pair of nerves has innumerable

anastomosing branches emanating from the filaments of the facial nerve. It is, therefore, evident that, far from contradicting the results of our experiments on the section of the facial nerve during our researches on it in the interior of the cranium, this last observation only goes to confirm them. The nerve which animates the parotid gland and presides over its secretion must consequently be one of the anastomosing branches furnished by the facial to the superficial auriculo-temporal nerve. On a level with the condyle of the jaw this latter furnishes a small branch, which pursues its course alongside the internal maxillary artery; but following a direction the inverse of that of the current of the blood: it then enters the parotid gland, where it ramifies freely. It is this bundle of nervous filaments which we must henceforth consider as the motor power of the parotid gland; and we must completely extirpate them in our dissection if we desire to arrest the secretion. The same results have been obtained in the course of our experiments on two other dogs.

"The discovery of the properties of this bundle of nerves presents under different points of view no small amount of interest. Call to mind the opinions which were formerly in vogue with reference to the parotid gland; it was regarded as absolutely passive in the act of insalivation; it was regarded by all physiologists as a kind of sponge, which the movements executed by the animal during mastication must have pressed in order to make the saliva flow. It is true that the gland was observed to become active during the trituration of alimentary substances, and no nervous filament was recognized the direct excitation of which was supposed to stimulate the secretion; the conclusion, therefore, seemed to be quite legitimate. To-day, you must observe, this opinion is no longer admissible; for during our galvanization of the nerve, this filament, which is no longer serviceable (seeing that it is cut,) does not give rise to any pain; no movement is produced; the jaws are motionless: it is not, therefore, to mastication that we are to attribute the flow of saliva which follows the galvanization; here there is an important fact which science has acquired.

"The parotid gland does not play an absolutely passive part in the insalivation of aliments.

"But this discovery may be turned to advantage in a more general point of view in our study of the circulation of the glands. The mechanism of the secretion was formerly explained by a hypothesis founded on purely mechanical grounds; the pressure of the blood in the vessels which lead to the glands was supposed to determine through their sides a transudation which was believed to pour into the acini a special product for each of the secreting organs. Ludwig has clearly demonstrated the inadmissibility of this hypothesis; he proved that an amount of pressure much more considerable than that occasioned by the circulation of the blood could be applied to the glands without exciting in any way the activity of their secretion. He adapts a manometer to the excretory duct of the submaxillary gland, he then ties this canal so as to completely prevent the escape of the secreted products; he at length excites, by means of galvanism, the motor nerve of the gland, that is to say, the chorda tympani; operating in this manner, we obtain, by the accumulation of the saliva, a pressure which raises the mercury to thirty or even to forty centimetres; this pressure is evidently directed in an inverse sense to that exercised by the blood; nevertheless, the secretion goes on uninterruptedly. The secretion of glands is, therefore, not due to a simple mechanical cause;

and it is this which the rational study of the circulation in the minor vascular systems corresponding or communicating with the secreting bodies demonstrates.

"While the gland remains in a state of repose, its venous blood is black; but no sooner does it begin to act, than its blood becomes red, and like that of the arteries, and when the vein is cut, the blood is remarked to issue forth in jerks, as if an artery had been cut. It seems, therefore, at first sight, that the circulation of the gland is accelerated, and that the secretion is the result of this new modification; but these conditions alone do not suffice to determine the physiological phenomenon; it is still necessary that nervous action should come into play. When we excite the secretion by sensations produced by moist substances, it becomes very difficult to decide between the part played by the circulation in the interior of the gland and that which is produced in the surrounding parts; the animal executes movements of deglutition, moves the jaws, and thus causes the blood to flow from all sides toward the vessels of the gland. Nothing of the like kind takes place when we apply direct excitation, by means of galvanism, to the motor nerve. The animal experiences not the slightest sensation; he remains motionless, and the circulation proceeds with the most perfect regularity. It is then that the observer is placed in excellent conditions for studying it. We have already adopted a method of procedure, as regards this subject, in the case of the submaxillary gland, but it has been impossible for us, up to the present moment, to repeat the experiment on the parotid, and it is especially with a view to this object that we have undertaken a search for the motor filament of this latter gland; for, if it were possible to compare, loupe and scalpel in hand, the act of secretion which takes place in two different glands, such, for example, as the parotid and the submaxillary, and to apprehend, at a glance, the difference and the analogy existing between them, an immense step would thus be made toward the discovery of the real essence of this important physiological function.

"The study of the properties of this nervous filament is fraught with interest in other respects; we know, for example, that by injecting into the torrent of the circulation certain substances, camphor for instance, the salivary secretion is powerfully excited; this is a subject which it is our intention to investigate, and especially for the purpose of ascertaining the nervous action which may determine it.

"Formerly, during my investigation of the subject of diabetes produced by lesion of certain parts of the encephalon, I proved that a well-marked salivation could be produced in an animal simply by wounding certain definite points. The wound which determines these accidents in the economy must be made on the floor of the fourth ventricle. Now when the cutting instrument chances to deviate to the right or the left, instead of acting directly on the median line, there is observed to take place a diminution in the flow of saliva from the gland of the same side; but when the wound is made directly over the median line the flow is the same on both sides.

"We have also remarked that the submaxillary gland furnishes more saliva than the parotid. To what is this difference to be attributed? The wound, as we stated, is made on the floor of the fourth ventricle, but the salivation takes place only when the point of the cutting instrument, being directed forward, wounds the parts adjoining the origin of the fifth pair of nerves. It would appear, therefore, that an injury bearing directly

on the nervous centre, which presides over the salivary functions, immediately gives rise to the secretion dependent on it; in fact, we know that it is through the medium of the fifth pair of nerves that most of the reflex actions are produced, which exercise on these glands such a powerful influence; in this nerve may be said to terminate the greater part of the gustatory impressions which may be called the ordinary source of the salivary flow. We have frequently repeated an experiment which goes to confirm the truth of what we have just stated. Cut the lingual nerve, galvanize its peripheric extremity, no result follows; give vinegar to the animal, still no effect is produced; the nerve which should transmit the impression being divided. But if you galvanize the other extremity of the nerve, thus acting directly on the nervous centre, you will produce a secretion similar to what is observed under ordinary circumstances; but if, instead of acting on the nervous centre by galvanization of the lingual nerve, you irritate directly the nervous centre itself, you will then produce a salivary diabetes, if I may be allowed to use such an expression.

"But, in addition to this, there exists certain poisons which act directly on the salivary glands; woorara, for example, which, as you know, kills very rapidly, by producing phenomena characterized by general paralysis, induces at the same time an abundant flow of saliva, which is to be explained, no doubt, by the complete relaxation which it produces in the entire glandular tissue.

"It may be objected that the asphyxia which this poison causes of itself suffices to explain the phenomenon: in order completely to solve the question, I injected some woorara into one of the small arterial branches which anastomose with the artery of the gland, at the same time taking care to open all the veins. In this way I poisoned the acini of the gland without poisoning the animal; I thus obtained a flow of saliva which it was impossible could have been produced by any other cause than the woorara.

"Woorara acts, therefore, on the *salivary* glands in the same way as it does on the other glands of the economy. Now, we are aware that this toxic agent acts especially on the extremities of the motor nerves; but how does this action on the extremities of their nerves affect the glandular bodies themselves? This is a difficult question, which we shall endeavor to solve at some future time. It has been our object, on the present occasion, merely to show you that a nervous centre presides over the salivary function. Having shown you that a permanent salivation may be produced in animals by artificial means, it follows that there exists a special nerve whose duty it is to preside over the action of each of the glands; and the discovery which we have recently made completes the series of proofs on which this doctrine is founded."—(*Med. Times and Gazette*, April 14.)

"*India-Rubber for the Making of Artificial Jaws and Palates.* By GEORGE PARKINSON, M.R.C.S.—The *Medical Times and Gazette* for the week ending April 28th, details the history of a case of cleft palate, which had been successfully treated by the application of an artificial palate made of vulcanized india-rubber. Having had considerable experience in supplying the deficiencies occasioned by fissures in clefts in the palate, and in substituting portions of artificial jaw in cases where the patients had undergone partial excision of that part by the surgeon, I am anxious to add my testimony to that of Mr. Elliott, feeling convinced of

the great advantages which india-rubber possesses over gold, or any other material which is at present in use in the profession. The following illustrate well the applicability of this remarkable material:—

“CASE 1.—Miss H. suffered from congenital fissure of both the hard and soft palate. The gap was so wide as to place the case quite beyond the reach of any surgical assistance. She had worn a gold palate for many years with tolerable comfort, but the loss of some of her teeth, and the consequent alteration of the shape of the upper maxilla, rendered her artificial palate almost useless. She at this time applied to me, and I fitted her with a palate of vulcanized india-rubber, which, for its extreme lightness, has caused the patient much comfort. Her powers of deglutition and speech have also much improved. This case has stood the test of many months, and may, therefore, be considered as permanently successful.

“CASE 2.—Mr. A. had been successfully operated on by Mr. Fergusson for congenital hare-lip and fissure of the palate. The cleft in the hard, however, still remained, and he was referred to me for the purpose of having a gold palate fitted to the gap. Having had already success in the application of the india-rubber, I used it again for this patient, and the result was such as to afford both the patient and myself the greatest satisfaction. The immediate improvement in the speech of this patient was most remarkable.

“CASE 3.—Miss B. had previously had the soft palate successfully closed by Mr. Fergusson, but suffered great inconvenience from an aperture in the hard palate about the size of an almond. To this case I applied the vulcanized india-rubber with the most complete success.

“CASE 4.—Miss H. had been operated on by Mr. Christopher Heath for hare-lip and fissure in the soft palate with most perfect success; but a small aperture in the hard palate still remained, which caused great imperfection in speech. The improvement in talking was greater in this patient after the application of the india-rubber than in either of the preceding.

“CASE 5.—Miss W.; congenital fissure of both hard and soft palate, far too extensive to allow of surgical interference. I applied an india-rubber palate, which rendered speech and deglutition easy and natural.

“CASE 6.—Miss H.; a similar case to No. 5, and attended with an equally satisfactory result.

“CASE 7.—Miss H.; the soft palate had been successfully closed by Mr. Fergusson, but a considerable cleft remained in the hard. I here also used the vulcanized india-rubber with a success equal to any of my other cases.

“CASE 8.—Eliza C. was operated on by Mr. Fergusson, in May, 1856, when the greater part of the left upper maxilla was removed. As soon as the cicatrix had become sufficiently firm to bear pressure, I supplied the deficiency by a frame of vulcanized india-rubber, attaching to it those teeth which had necessarily been removed by the operation. The extreme lightness of the india-rubber rendered it most useful in a case of this kind; and the great comfort which it has afforded the patient has induced me to adopt a similar proceeding in other cases of this nature which have since come under my notice.”—(*Ibid.*, May 19.)

“On the Action of Hypochlorite of Lime on Sulphur, and the Employment of a Mixture of these Bodies for the Vulcanization of

India-Rubber. By M. GAULTIER DE CLAUBRY. (Comptes Rendus).—Mr. Parkes, of Birmingham, first made known the curious fact that caoutchouc in contact with very small quantities of chloride of sulphur dissolved in any convenient menstruum, sulphide of carbon, for example, became vulcanized at the ordinary temperature. This process allows of the vulcanization of many objects on which it would be impossible to operate at a high temperature, such as very thin sheets of caoutchouc, or woollen garments, or silk fabrics dyed in colors which cannot resist a great heat. Mr. Parkes also pointed out the precautions necessary when thick pieces are operated upon; but whatever care may be taken, it is easy to see that it is almost impossible to obtain in this way products equally vulcanized.

“Mr. Parkes has pointed out another way by which a better effect is produced, which consists in mixing with the caoutchouc paste what he calls *dry chloride of sulphur*. This name can only be applied to flowers of sulphur impregnated with chlorine, and by means of this mixture india-rubber can really be vulcanized in the cold, and the greater part of the sulphur remain in the state of simple admixture.

“The analysis of a great number of vulcanized objects having revealed the presence of chloride of calcium, it occurred to me that this salt might come from hypochlorite of lime which had been used in the caoutchouc paste to produce the chloride of sulphur necessary for vulcanization, and that it was such a mixture which Mr. Parkes used. The following facts prove beyond doubt that it may be employed for the purpose.

“If we simply shake flowers of sulphur and dry hypochlorite of lime together at the ordinary temperature, the two are scarcely in contact before a strong smell of chloride of sulphur is manifested. If the two be rubbed together in a pestle and mortar, the temperature of the mixture rises, the sulphur becomes soft, and the whole agglutinates into mass with the abundant evolution of vapors. When the sulphur is greatly in excess relatively to the hypochlorite, the mixture of the two bodies should be made without rubbing; it may then be added to the caoutchouc paste with or without the addition of other substances, such as chalk, zinc white, etc., and the vulcanization may be effected either at the ordinary temperature, or at a gentle heat. By this process it is possible to obtain india-rubber of any thickness uniformly vulcanized.

“When sulphur is mixed with a large excess of the hypochlorite of lime by merely shaking the two together, the temperature quickly rises very high and strong action takes place, therefore the mixture must never be made in a close vessel.”—(*Chemical News*, May 26.)

“*Two Cases of Interstitial Keratitis with Teeth of the Hereditary Syphilitic Type.*—(Under the care of Mr. STANLEY.) Any one who has access to St. Bartholomew's Hospital, and who is desirous to make himself acquainted with the dental malformations indicative of hereditary syphilis, may examine two typical examples of them in patients now in Darker Ward. Both the patients are boys, aged fifteen, and both are under care for interstitial keratitis. According to the views now entertained at the Ophthalmic Hospital, this form of inflammation of the cornea occurs almost solely in the subjects of inherited syphilis, and it is a matter of established clinical observation, that those who suffer from it almost invariably exhibit remarkable peculiarities in their teeth. Occasionally it occurs before the second dentition, and then the teeth are no

guide in diagnosis, as the peculiarities are manifested only in the permanent set. The malformations to which we refer mostly affect, in greater or less degree, all the incisor and canine teeth of both jaws, but the central incisors of the upper jaw are those most commonly and most peculiarly modified. These latter may indeed be regarded as the test teeth in reference to this question, and any one not familiar with abnormal dental types will do well to confine his attention to them in attempting to establish a diagnosis as to inherited syphilis.

"Our immediate object in alluding to this subject at the present time is simply to draw attention to Mr. Stanley's two cases, for it is not often that such well-marked ones are met with in the wards of our general hospitals. At the ophthalmic hospitals syphilitic teeth may be seen every day, but it is because their subjects are brought there on account of the keratitis from which they usually suffer at or near the period of puberty.

The following are brief particulars of the cases to which we refer. It will be seen that we have not been able to obtain any history from the patient in either instance. It is, however, one of the great advantages of a knowledge of the typical form of teeth, that it enables its possessor to dispense with the necessity for asking direct questions, which always occasion annoyance, and are usually answered without any regard to the truth.

"*CASE 1.—Double Interstitial Keratitis of much Severity at the Age of Thirteen. Characteristic Teeth. History of Eye Disease of an Elder Sister.*—W. L., aged fifteen, is a tall well-grown lad. The bridge of his nose is not much widened or sunken. His forehead is slightly protuberant, and his face shows patches of psoriasis. His palate is very high and narrow. He is rather deaf. He states that he is the second of three children. An elder sister, aged eighteen, has suffered from 'bad eyes,' and is now quite blind of one. A younger sister, aged thirteen, is believed to be in good health.

"*State of Eyes.*—Both corneæ are extensively opaque by the interstitial deposit of lymph. They are also, as is not unusual after a long and severe attack, thinned in the centre, and pushed forward so as to be more convex than is normal. The disease is now slowly subsiding, and the clouds of opacity are gradually being absorbed. The left eye was the first attacked, and its fellow began to inflame about eighteen months ago. The right was not affected until three months later, but they have since suffered with almost equal severity.

"*State of Teeth.*—The central upper incisors are very peculiar indeed, and are of the form most unmistakably typical. Instead of becoming wider from side to side as they project downward, they are narrowed and their corners are rounded off. In the centre of their cutting edge is a deep vertical notch which is prolonged upward as a shallow groove in the middle of the front surface of the tooth. The teeth are carious at their necks. The lateral incisors are so much destroyed by caries that their original form is not recognizable. The lower teeth are all of good form, with the exception of the central incisors, which are narrow, peg-like, and notched.

"*CASE 2.—Double Interstitial Keratitis at the Age of Twelve. Syphilitic Physiognomy. Characteristic Teeth.*—George M., aged fifteen. This lad is of pale complexion, broad, sunken nose, and flabby skin. He is the eldest living of a family of five—two older than himself having died in infancy (one at six months and one at two months.) He has suffered for several years from purulent discharge from both ears, and is now partially deaf.

"State of Eyes.—His right eye was first attacked about three years ago, and the left some time subsequently. The left cornea appears never to have suffered so severely as the other, and is now clear, excepting a slight haze in its lower part. He can see to read with the left, but is troubled with muscæ and black spots. The right cornea is still very extensively diseased, the masses of deposit being unusually large and dense.

"State of Teeth.—The central upper incisors present each a broad notch in their cutting edges. They are not particularly narrowed, and though not nearly so peculiar in form as those in William L.'s case (see above,) they still present the same feature (an atrophy of the middle lobe of the tooth-edge,) and are sufficiently characteristic. The lower incisors are serrated, but not much notched.

"Among Mr. Dixon's out-patients at the Ophthalmic Hospital there are at present many very good examples of the syphilitic type of teeth in conjunction with interstitial keratitis. In one instance three children (a sister and two brothers) are all affected by the same form of disease, and all present the same type of dental abnormalities. It is most interesting, however, to observe the gradations in severity according to the age of the patient, both in regard to the eyes and the teeth. The girl is the eldest living of the family, and her teeth have suffered most severely, while her countenance is repulsively deformed by the effects of infantile syphilis, her forehead being protuberant, bridge of nose level with cheeks, large scars at angle of mouth, etc. Her next brother presents characteristic teeth, and has suffered a well-marked attack of keratitis, but his physiognomy is not very peculiar, while the third presents, both as regards eyes and teeth, a still less well-marked condition of things. They have three younger brothers who are reported healthy. The history given is that both father and mother went through the ordinary course of constitutional syphilis and mercurial treatment soon after marriage, and that their two eldest both died in infancy of inherited disease. The girl (their third) is stated to have suffered severely from the usual symptoms in infancy, but got through them. Neither of her brothers are remembered to have had anything noticeable in infancy. It is worthy of remark, in relation to the following case, that the girl is deaf, partially paralytic in her right arm, and almost an idiot as regards intellect."—(*Med. Times and Gaz.*, June 9.)

"Development of the Teeth of Cattle, and Mode of ascertaining their Age by the same.—Persons acquainted with the dentition of 'neat stock,' can form a pretty accurate idea of age, from the period of birth up to that of adult life; and this method of ascertaining the age of an animal is, probably, more correct than that which applies to *horns*; for by means of a rasp applied to the rings of the horns, any amount of imposition may be practiced, when it is well known that the same liberties are not to be taken with the teeth without the chances of discovery. It is possible that there may be some slight variations from the following rules, in the development of the teeth, yet such variations will not embrace a period of over a month or six weeks, which at maturity does not amount to much, and may be considered as purely accidental—out of the ordinary course of nature. The front teeth, or temporary incisors, are found in the lower jaw; there are eight of them, all prominent at the age of four weeks. The calf is usually born with three temporary grinders or molars; the fourth appears six months after birth; the fifth appears at the age of fifteen months; and the sixth is to be seen at the age of

two and a half years; now, the animal has a 'full mouth' of temporary teeth, numbering thirty-two. At this period a very remarkable change in the teeth is about to occur; the temporary ones, having answered the purposes for which they were intended, are to be removed in the following order, so as to give place to others which shall correspond to the increase in the size of the jaw bones, and proved as durable as other bones of the body. At the age of two years, the central or middle incisors (lower jaw) are shed and replaced by two permanent ones. At the age of three, the two incisors known as the inner middle, undergo the same process. At the age of four the outer middle are shed, and replaced by permanent teeth. At the age of five, the corner incisors are also transformed in the same manner, and the animal has a full set (eight) of permanent front teeth. The first and second permanent molars, known as grinders, appear in the upper and lower jaws, on each side, at the age of two years; and at intervals of one year, the other four are successively cut; so that at the age of six years, the animal has a 'full mouth' of permanent grinders."—(*Am. Stock Journ.*)

"Return of Sensibility after Section of Nerves. By DR. LOTZBECK, of Tübingen.—The author has devoted himself to minute researches on the return of sensibility in five cases of the division of nerves, three of which belonged to the inferior maxillary, the other, to the infraorbital. In four cases a portion of nerve more or less had been excised, and in one case simple section only was performed.

"In all the cases, the operation had been followed, within the sphere of distribution of the divided nerve, by a diminution of, or total insensibility to, touch, and the perception of temperature; this modification of sensibility has been complete, either immediately after the operation, or from twenty-four to forty-eight hours subsequently, or at most only twelve days.

"The diminution of perception of temperature is sometimes proportioned to the abolition of tactile sensibility, and makes the same progress; sometimes it continues even when the tactile sensibility has already perceptibly diminished, and does not disappear entirely until a subsequent period.

"The diminution of tactile sensibility is accompanied by the following particulars: the patients perceive more slowly and with less precision the part that is touched; besides, in order to produce a double impression, it is necessary that the two points of a compass, placed in contact with the skin, be farther separated than in the normal condition, and that the distance which it is necessary to leave between the two points be gradually increased.

"In all the cases observed, a return of sensibility, more or less perceptible, has been verified. This phenomenon has, moreover, exhibited wide variations in the different cases; this has been observed sometimes after some days, sometimes after the lapse of a much longer period; sensibility may be restored in the entire extent of the integument where it had disappeared, or only within circumscribed limits; sometimes it returns to its normal level, sometimes it remains weak.

"The return of the perception of temperature proceeds generally, and with almost trifling variations *pari passu*, with the restitution of tactile sensibility; but in one case, this latter was almost restored to its normal state, while the perception of temperature was altogether absent.—(*Deutsche Klinik; Gazette Hebdomadaire; New York Med. Press.*)

MISCELLANY.

In a letter to the *Med. Times and Gazette* for May 12, upon the nature of death from chloroform, and its relative frequency from small and large quantities in minor and major surgical operations, DR. CHAS. KIDD presents statistics to show that it is more dangerous in the former than the latter. He says: "There have been about one hundred and twenty-five deaths from anæsthetics in Europe up to the present date. A very large number, the only list of any such cases on the Continent, is one by M. Scoutetten, an army surgeon, who gives forty deaths, but unfortunately does not specify the nature of the operation for which the anæsthetic was administered. Dr. Snow gives fifty deaths, and I have since myself made out thirty-five deaths in addition. All agree as to the vast preponderance, however, of deaths in male patients rather than in female; it also appears that while there have been in reality no deaths as the result of large amputations, resections, ovariectomy, etc., fully two-thirds of the deaths have been from operations on sphincters or tendinous sheaths, strabismus, tooth-drawing, etc."

He further observes: "The general result is very curious, and, I think, very convincing, that in the hundreds of thousands of operations where chloroform has now been used, it has proved in the vast majority to be perfectly safe, and that it is safer in large than in small operations."

In the accompanying table of the various operations in which death followed anæsthetization, it is mentioned that from four to six fatal cases occurred in the extraction of teeth.

In discussing the relative frequency of death before, during, and after operations, from different anæsthetics, their combination and modes of administration, he states: "A very large number of the twenty-five deaths from the use of anæsthetics after operation, have been deaths from the effects of the slow administration of ether, or ether and chloroform mixed, but not from pure chloroform. I published nineteen deaths from ether two years ago, yet it is still suggested in America that there have been no deaths from this agent. Scoutetten gives five; and since then there have been at least four or five more from ether or amylene; so that, on the whole, there appears at present about a hundred deaths from pure chloroform, and one-fourth (or twenty-five) from ether or amylene. Next, as to the stage or degree of the anæsthetic process which appears most dangerous, this (contradictory though it seems) is decidedly the stage of excitement, or the early stage of violent plunging, before the patient is rendered anæsthetic and fit for the operation he is about to undergo. This escaped the knowledge of Dr. Snow."

In relation to the time and mode of death, comparative danger in large and small operations, degree of tolerance of the chloroform in different states, etc., DR. KIDD makes the following general remarks: "I think it will be found that the mode of death by 'fits,' trachelismus, syncope, etc., observed before operations, occurring suddenly, and consequently the means to be adopted for resuscitating patients in such accidents, differ very widely from the mode of death observed and means to be adopted for resuscitation of patients who show a tendency to sink after operations (by asphyxia?). We have hitherto confounded the two, and have been looking for some one great secret cause of these most melancholy occurrences. One set of accidents seem to occur suddenly from chloroform; the other slowly, but from ether. It appears also very instructive and

consoling that in all the large, tedious operations—such as resections, large amputations, midwifery, ovariectomy, ligatures of large arteries, etc.—such is the ‘law of tolerance’ of chloroform, that in these formidable operations it is almost free from danger; whereas, in trivial operations (where, fortunately, we might use Dr. Arnott’s congelation plan) the chances of accident are very serious indeed.”

The Paris correspondent of the *Lancet* writes that “PROF. NÉLATON lately removed two cancers of the tongue by the *écraseur*, and one of the patients has since left the hospital. The greatest surgical curiosity has been the removal, by M. Nélaton, of a large tumor situated at the left side of the face and covering the whole of the neck, hanging down over the chest, and reaching as far as the fourth rib. The patient is a man of thirty-five, who had five years ago a small tumor in the same region, which was removed; but it soon returned, and, making rapid progress, reached such a huge size that, unless removed, it would have proved fatal by causing asphyxia. Its measurement was, from the parotid on the left side, near the angle of the ramus of the left jaw, seventeen inches; its circumference above ten inches. The nature of the tumor was what French surgeons call *ganglionic*, meaning simple hypertrophy of the lymphatic glands; while M. Robin designates it *ganglioma*, taking it to be a kind of *encephaloid*. M. Nélaton removed the greater part of the tumor, and to the rest he applied caustics. The patient is doing well.”

In another letter the same writer states that “the anæsthetic properties of the bromide of potassium have been turned to good account by M. Guersant, surgeon to the Hôpital des Enfants Malades, in the performance of operations in the neighborhood of the throat and pharynx, and more especially in that of *staphyloraphy* in the case of children. This practitioner has found that the administration of this salt in subdivided doses, to the amount of ten grains daily for a certain period, will produce a state of anæsthesia, more or less complete, in the parts concerned in the above-mentioned operation, rendering the employment of chloroform unnecessary, and still giving the surgeon the benefit of his patient’s co-operation.”

In the course of an interesting paper “on the scrofulous conformation, or diathesis based principally on the study of the skeleton,” read before the Royal Med.-Chir. Soc. of London, and published in the *Lancet* for June, DR. T. G. HAKE presents, among others, the following propositions:—

“The foetal cranium, during the early weeks of embryonic life, has a conformation approaching to that of the Ethiopian type; at the twelfth week, or thereabouts, to the Mongolian; it afterwards attains by degrees to that of the Caucasian, and it is, for the most part, among the rudimentary forms of this latter that the scrofulous conformation is to be identified after birth. * * * * * The jaws and the teeth are marked by characters of a foetal type in subjects of the scrofulous conformation. The jaws are frequently prognathous in strumous habits; the teeth project, and are with difficulty covered by the lips. In an anencephalous fœtus in Guy’s Museum the muzzle is prognathous.”

In a letter to the above-named journal, MR. HENRY BIRD gives the following list of common deodorants: “1, Burnett’s chloride of zinc; 2, permanganate of potash; 3, protochloride of iron; 4, sulphate of protoxide of iron; 5, sulphate of alum; 6, sulphate of alum and sulphate of

iron; 7, sulphate of iron and common salt. These all appeared to act in nearly the same manner upon sewage, and sulphate of iron and alum seemed to be the most efficient. When the smallest quantity of chlorine was added to either of these solutions the smell immediately disappeared. As no danger of poisoning can accrue from using even a strong solution of sulphate of iron and alum, and as it acts as well as, if not better than, the other deodorizers, it ought to be adopted in preference to lime, zinc, and all others; besides being the cheapest of all."

In relation to the early decay of the teeth, a writer in the same journal states that "the Report of the Birmingham and Midland Counties Dispensary for the Diseases of the Teeth points out the astonishing fact that of 1952 operations undertaken, no less a number than 1494 were performed upon patients under the age of twenty years; and that out of the same number of operations, 1217 were upon the most valuable teeth in the head—namely, the molars, or masticating organs."

In the course of some clinical remarks upon paralysis connected with dentition, PROF. F. H. HAMILTON observed (*American Medical Times*), that "infantile paralysis occurs generally at some time during the period of first teething, and seems to have a more or less direct connection with this process. There are several periods in life in which the system or portions of the system undergo remarkable changes, and great nervous derangements are apt to ensue. The period of the first dentition is one of these, and among the consequences of the nervous disturbances occasioned by the development of the teeth are convulsions, hydrocephalus, diarrhœa, and paralysis. The other periods to which I allude, are puberty in both male and female, and 'the change of life,' or the period of cessation of the menses, in the female. I think that I have observed, also, that at the period of 'change of life' in the male, paralysis and cerebral apoplexy are exceedingly liable to occur."

In a notice of DR. CARNOCHAN'S "Contributions to Operative Surgery and Surgical Pathology," the editor of the *Charleston Med. Jour.* disputes his claim for priority in the performance of the plastic operation for the restoration of the upper lip in this country. He fortifies his position by the relation of the following interesting case: "On the 28th April, 1858, we had occasion to manufacture a pair of lips for a lady aged eighteen whose face had been attacked two years before by lupus exedens, which rapidly destroyed the nose, and both lips, extending also upon the cheeks. When its ravages had been checked, it healed up, leaving the entire anterior surface of the face a cicatricial surface. A small depressed opening in the face was all that remained of the nose, while an unyielding cicatricial rim limited the mouth, exposing both rows of teeth and gums, and tying down the jaws to such an extent as to exclude the use of all solid food, and compel the sustenance of life by suction. Intense and continued suffering was caused by the constant exposure of the teeth to desiccation and changes of temperature. By making an X-incision across the centre of the mouth with its arms extending on a level with the remnants of the nose and down upon the chin, connected with four horizontal incisions running off from the extremities of these lines into the cheeks above and upon the chin below, four irregularly quadrilateral flaps were dissected up and brought together on the median line so as to cover the rows of teeth and release the jaws from their long confinement; thus forming two very decent lips. As the flaps contained much cicatricial tissues, the result was not as perfect as we could have wished, but was

sufficiently so to add very much to the comfort of the patient; protecting the previously exposed teeth, and relieving her from the constant toothache with which she was previously annoyed; allowing her to retain the saliva which was formerly escaping constantly from her mouth, to speak with more clearness, and to enjoy the pleasures of the table. This case is only mentioned to show that Dr. Carnochan has no claim to the introduction of this operation into the United States, and no doubt cases could be found of similar operations of a much earlier date."

In the record of the proceedings of the Boston Soc. for Med. Improvement in the *Boston Med. and Surg. Jour.* (June 14th,) it is stated that Dr. WARREN reported the following case of dangerous asphyxia resulting from the displacement of artificial teeth during etherization. "He lately had occasion to etherize a lady, thirty-five years old, in order to examine a painful tumor of the leg. She came quietly under the effects of the ether, but did not rouse afterwards. The pulse was good, and there were no symptoms of dyspnoea. She gradually became purple in the face, was quite insensible, and seemed to be passing into a dying state. Introducing his fingers into the mouth, in order to draw the tongue forward, Dr. W. found a complete set of upper teeth, attached to a gold plate, deep in the fauces. This was removed, the fauces irritated, the patient rubbed, etc., and at last vomiting was brought on, and she revived. She soon became violently delirious, uttering shrill cries, and beating herself, for an hour and a half. For the next two hours she was in a croupy state, from the violence of her efforts, but in the course of the evening she gradually recovered, though she remained hoarse for two days. Dr. W. observed that the accident was one likely to occur under such circumstances, and showed the expediency of removing artificial teeth before proceeding to etherize a patient.

"Dr. Parks alluded to a case which he had already reported to the Society, in which a patient experienced severe symptoms of suffocation, caused by unconsciously swallowing a set of false teeth, during sleep, which had lodged behind the glottis. The symptoms were immediately relieved by the removal of the foreign body."

In the course of an instructive paper upon the pathology and treatment of erectile tumors, in the *Chicago Med. Jour.* for June, Dr. BRAINARD thus notices the effects upon the salivary gland of the injection of iodine into one of such, situated on the anterior part of the thigh. "I threw into one of these tumors two grains of iodine and six grains of iodide of potassium in two drachms of water. The injection was made with Anel's syringe through a small exploring trocar introduced to the centre of the tumor. Almost instantly the patient began to spit, and continued discharging saliva freely during three days, complaining all the time of a bitter taste in his mouth. The tumor, after the operation, became more tense, and warmer than natural, and after the fifth day contracted below its former size, and was flaccid. Encouraged by these results, I repeated the injection a second time, one week after the first, with the same results in every respect.

"The declining state of the patient's health was the only cause why the treatment was not persevered in. The solution in this case passed directly into the circulation, producing instantaneous iodine ptyalism, and was not retained in the tumor as it should have been."

In illustration of the irritative effects of perchloride of iron when injected into such tumors, Dr. B. adduces, among others, the following case.

"Mr. Follin read to the Society of Surgery the report of a case of erectile tumor of the face, affecting the gums, lips, cheek, etc. Injections of the perchloride of iron were made into the lip at two different points. The immediate effect was the production of hard knots at each point. In five days the lip was very much swollen; one of these points suppurated, and at the end of a month no trace of either remained. Several injections into the substance of the gums and the veil of the palate where the parts were diseased, resulted in ulceration in three days."

The *United States Journal* says that "aluminum is being employed in making bronze for cannon, in constructing philosophical and other instruments, etc. But while the new metal perfectly resists most acids, and certainly all ordinary ones, as well as sulphur, its value is likely to be lessened by the fact, if it be such, now reported, that it is readily corroded and crumbled by the contact of pure alkalies." It also states "that a perfect imitation of silver, it is said, is made by alloying 30 parts nickel with 20 or 30 of silver, and enough of copper to make 100 parts. It will be strange, however, if the weight be exact."

In an interesting article on aluminum in the *Scientific American*, (May 26th,) it is stated that "some of the alloys of aluminum have very remarkable properties, especially the aluminum bronze, composed of 90 lbs. of copper to 10 of aluminum. This alloy is stronger than the best wrought iron; it may be cast, hammered, or rolled, and it resists the corroding action of the atmosphere, nearly if not quite as well as gold. Besides these properties, it is of a beautiful yellow color, and is susceptible of a very fine polish. Alloys of aluminum may be obtained by the decomposition of alumina by carbon, in contact with certain metals electro-positive in relation to aluminum—for instance, copper and iron. E. L. Benzon obtains an alloy of aluminum and copper by the following method: Alumina, animal charcoal, and copper, (either the simple metal or the protoxide or peroxide,) all finely pulverized, are thoroughly mixed together in proportion to their atomic weights, and placed in a melting pot similar to the pots in use for cast steel. The mixture, covered with charcoal, is exposed to a strong red heat, nearly sufficient to melt the copper, until the aluminum is reduced to the metallic state. The heat is then augmented for half an hour or an hour, until the metals are thoroughly melted together and a perfect alloy obtained."

The *Chemical News* says that "Professor Boettger has made the following curious observations. When dry oxide of silver is damped with essence of cloves, the mixture takes fire spontaneously and the oxide is reduced to the metallic state. The same takes place with peroxide of silver obtained by electricity, and with oxide of gold. With peroxide of lead and chloride of lime the essence becomes heated and evolves smoke. It has no action upon permanganate of potash or on oxide of mercury. The hydrocarbon oils that this essence contains when separated from the eugenic acid it also contains, do not act upon the above substances in the same intense manner."

The same publication contains the following remarks on the solubility of silica in alcohol mixed with hydrochloric acid: "Winkler observes that when Portland cement, slag from furnaces, olivine, or other pyrogenous silicates in fine powder are added to alcohol saturated with hydrochloric acid, the silica is dissolved, and a transparent mobile liquid is obtained. The author supposes that this is a consequence of the silica absorbing the elements of alcohol, which in that case replaces water of crystallization.

Wurtz thinks that silica, like the other acids, may be etherified under the influence of a mixture of alcohol and hydrochloric acids."

It also gives the following method of platinizing glass and porcelain: "Every one who has experimented with an extemporized Marsh's apparatus has found that after the gas has burned a short time the glass tube has become fused and the aperture closed. Herr Dullo says this may be prevented by platinizing the extremity of the tube. He draws out the tube, files it to make it a little rough, and then dips it into a strongish solution of bichloride of platinum, so as to take up a drop or so. He then carefully heats the point until it acquires a beautiful metallic lustre. By repeating this four or five times a good coating of platinum is obtained both outside and inside. In the same way the author platinizes porcelain crucibles, using of course unglazed ones for the purpose."

It also mentions an improvement by R. MUSHET, "in producing a superior quality of cast steel, by melting malleable iron together with carbonaceous matter and ores, or oxides of titanium or titaniferous iron ores, or titanic acid, or deoxidized titaniferous iron ores."

It is stated by the *Franklin Inst. Jour.* upon the authority of the *Cosmos*, that "by incorporating into melted steel from 2 to 5 per cent. of Tungsten, there is obtained a steel which is very dense, hard, and strong; admirably fitted for the manufacture of tools. The instruments made with this Tungsten steel are said to keep their temper four times as long as usual."

The *N. Y. Med. Press* says, that to render chlorine gas innocuous, "PROF. BOLLEY recommends a solution of *anilin* in water, a few drops of which on a handkerchief, and at times applied to the nostrils, will enable a workman to tolerate the action of the chlorine upon the lungs."

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Epitome of Braithwaite's Retrospect of Practical Medicine and Surgery. By WALTER S. WELLS, M.D., New York. Two more numbers of this valuable work have just come to hand. They would have completed the series according to the original plan, but as it has been found difficult, we presume, to condense all that is desirable into five parts, it has been extended to six. Numbers four and five include all subjects from Hys. to Syp., commencing with hysteria and ending with syphilis. We cheerfully recommend this work to our readers, believing it will yield a rich return for the small sum expended in its purchase.

The Scientific American. This is one of the most useful papers published in this country, and should be liberally encouraged. It is "devoted to popular science, new inventions, and the whole range of mechanic and manufacturing arts," and supplies much important information for all classes of society. Each number contains "sixteen pages of letter-press, and from ten to twelve original engravings of new inventions, consisting of the most improved tools, engines, mills, agricultural machines and household utensils, making fifty-two numbers in a year, comprising 832 pages, and over 500 original engravings, printed on heavy, fine paper, in a form expressly for binding." It is issued every Saturday, by MUNN & Co., 37 Park Row, New York, at \$2.00 per annum in advance. A favorable opportunity is now presented for subscribing, as a new volume will commence on the first of July. Specimen numbers will be sent free, on application to the publishers.

Fig. 1

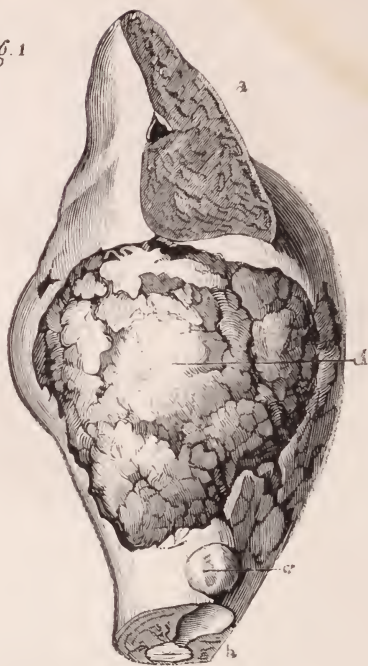


Fig 2

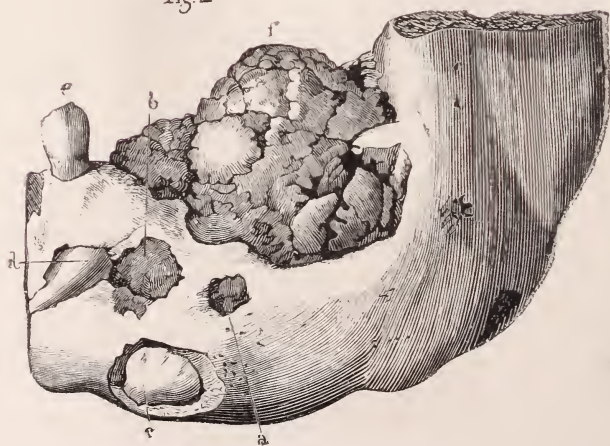


Fig. 3

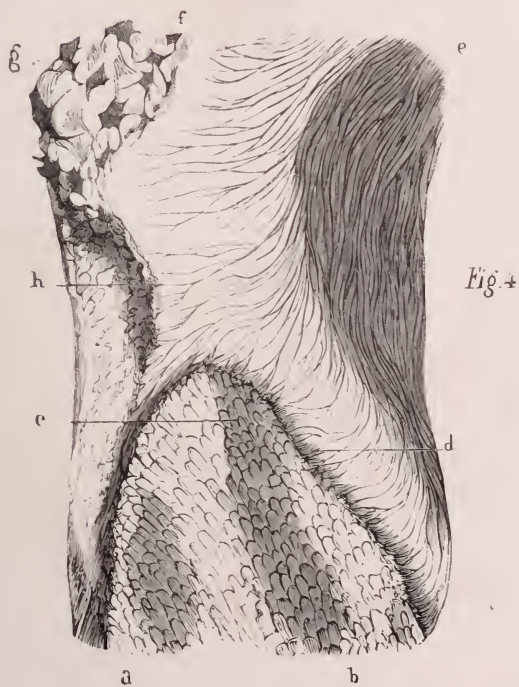


PLATE I.

FIG. 1.—Represents the left half of the body of the inferior maxillary, hollowed into a large cavity, containing an ivory-like bony tumor.

- d.* Side view of the alveolar edge.
- a.* Orifice of the dental canal, upon the surface of the resection of the bone in the continuity of the ramus.
- b.* Plane of the cut in front, showing the second small molar, which was found in it.
- c.* Crown of the first molar, in regular position.

FIGS. 2 AND 3.—The two halves of the anatomic section, divided according to its axis. (*Osseous cyst, and included tumor.*)

FIG. 2.—*c.* Crown of great molar, seen through a notch in the outer wall of the cyst.

- d.* Second small molar.
- e.* First small molar.
- a* and *b.* Points of the same wall, perforated by the prolongations of the tumor.
- f.* Summit of the most elevated of these.

FIG. 3.—*a.* Interior aspect of the tumor.

- b.* Great molar, inverted.
- c* and *d.* Cellulo-fibrous membrane, interposed between the osseous cyst and the tumor.

FIG. 4.—For Microscopical examination of, see page 287.

Fig. 1



Fig 2



Fig 3



Fig. 4

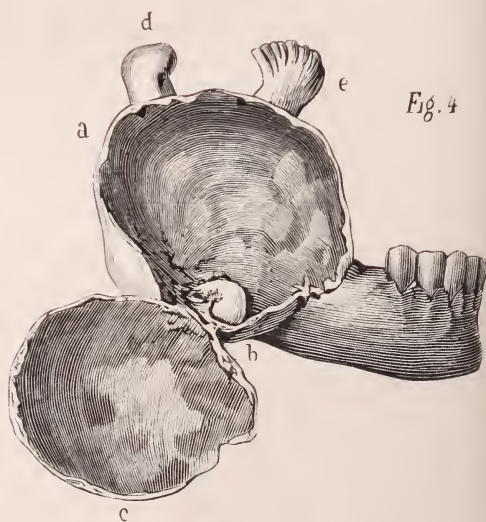


Fig. 5



Fig. 6



Fig. 7

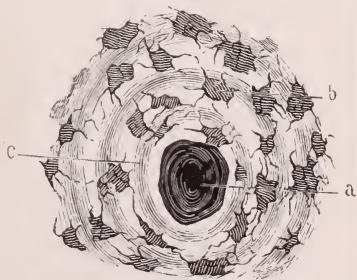


PLATE II.

FIG. 1.—*b*. Osseous tumor united to a molar tooth, (*a*.)

FIG. 2.—*a*, *b*. Section of the tooth and of the tumor.

FIG. 3 —*a*, *b*. Dental tumor formed by the anomalous development of the first two molars.

a. Summit of the tumor. *b*. The root of the tumor.

FIG. 4.—*a*. Cyst of the right branch of the inferior maxillary bone, the cavity of which is made visible by the circumferential resection of its external wall.

b. A molar tooth inclosed in the osseous tissue, and *en relief* upon the bottom of the cyst.

c. External wall of the cyst, inverted.

d. Condyle and neck of the jaw.

e. Summit of the coronoid apophysis, with the insertion of the temporal muscle.

FIG. 5.—Upper jaw of a horse; view of half of the palatine face.

a. Osseous cyst developed in the interior and right side of the jaw; it includes the tumor represented by Fig. 6.

b. Right canine, thrust backward and inward toward the medio-palatine line.

d. Alveolus of the left canine tooth.

e. Osseous perforation, conducting to the interior of the cyst.

FIG. 6.—Intramaxillary osseous tumor, (natural size;) it was contained in the cyst represented in Fig. 5.

FIG. 7, (300 diameters.)—Represents a part of the section of the tumor shown in Fig. 6. This tumor appears to be formed entirely of the cement or osseous substance surrounding the dental root. It is an exostosis of the dental cement. This exhibits the structure described in the explanation of Fig. 4, Plate I.

a. Vascular canaliculi of the osseous substance of the tumor, (Havers' glands.) The tumor traversed by these as in the normal osseous substance—only they are more rare, more scattered, and more irregularly distributed.

b. Osteoplasts disposed circularly, or nearly so, in a concentric manner around the Haversian canal, but less exact and evident than in the normal condition.

c. The osseous substance, properly so called, in which the osteoplasts, or characteristic cavities of the osseous tissue, are excavated.



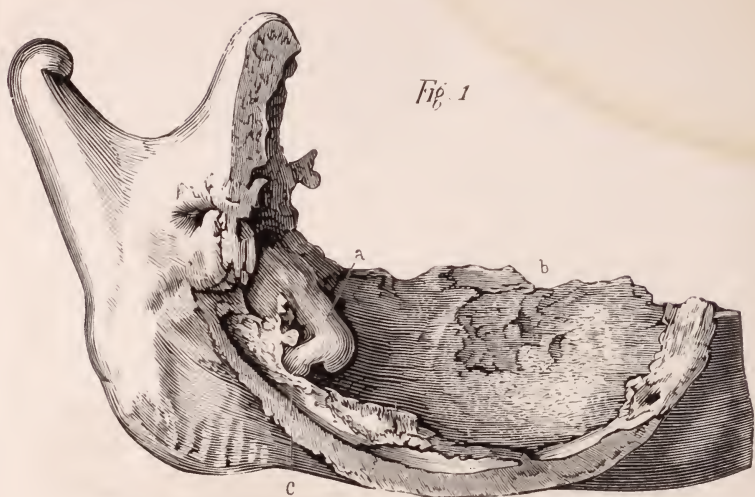




PLATE III.

FIG. 1.—Represents a cyst occupying the whole extent of the right half of the body of the lower jaw, and of the coronoid apophysis. The external wall of the cyst has been removed, and permits a view of the cavity, bounded by the internal wall *b*, which remains.

- a*. The wisdom tooth, developed in an anomalous fashion in the base of the coronoid apophysis.
- c*. Dental canal, open through the whole of its extent. It does not communicate with the cavity situated above it.

FIG. 2.—*d*. Right side of the inferior jaw, affected by the rarefying osteite.

- a*. Large molar tooth encysted in the bone.
- b*. Interior of the cyst, with a black bottom, representing the membranous tissue that lined its surface.

FIG. 3.—Same cyst, open at the side of the mouth. It reproduces (*a* and *b*) the aforesaid anatomical arrangements.

FIGS. 2 AND 3.—*c*. Three incisor teeth, the canine tooth and the first two molars, removed from their position, and retroverted one upon another.

Fig. 1.



Fig 2.

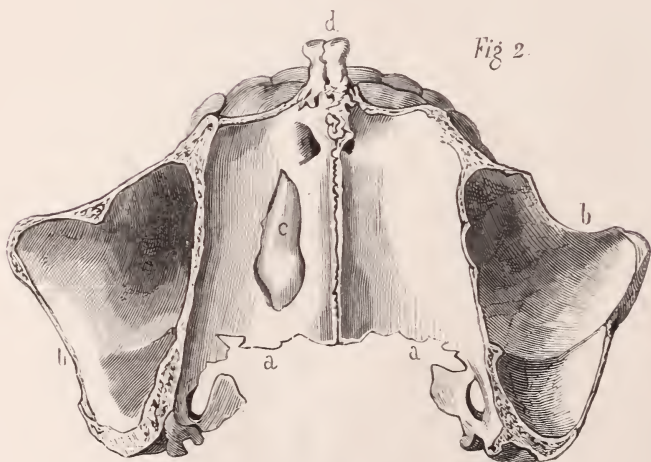


Fig. 3.

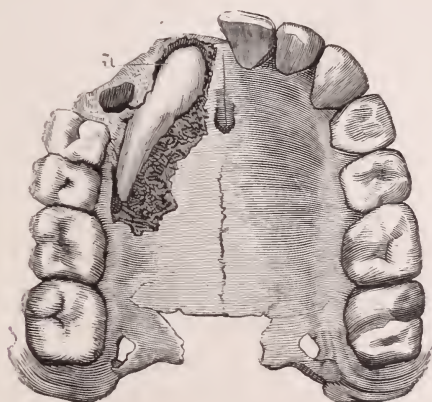


Fig. 4.

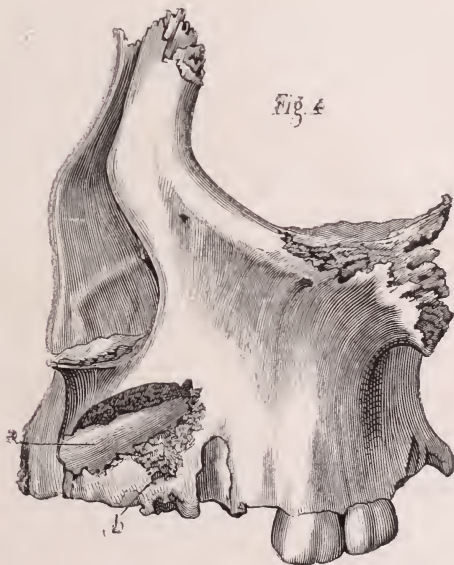


PLATE IV.

ANOMALIES IN POSITION OF THE TEETH.

FIG. 1.—*a*. Incisor tooth retroverted, and directed toward the intramaxillary symphysis.

FIG. 2.—*c*. Canine tooth developed in the thick part of the floor of the nasal fossæ, where it forms a prominence; the root is directed forward.

b, b. Section of the maxillary sinus.

d. Nasal spine.

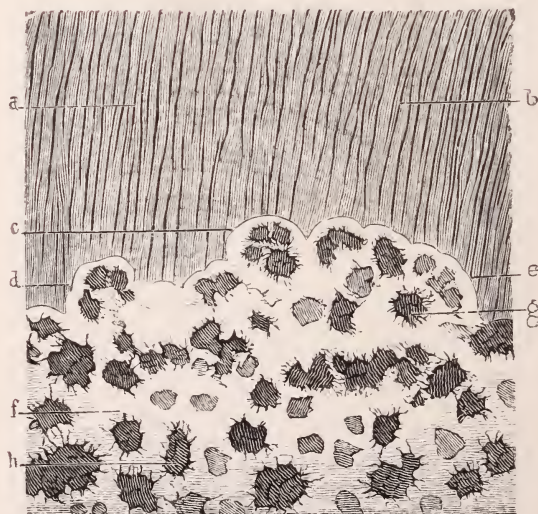
a, a. Posterior edge of the nasal fossæ.

FIGS. 3 AND 4.—Two other examples of anomalies in the position of the teeth.

Fig. 1



Fig. 2



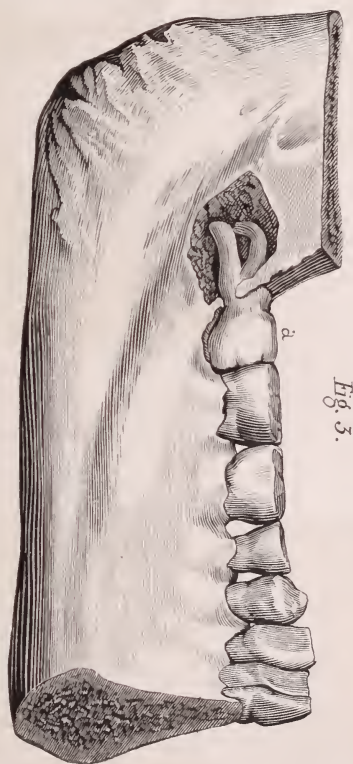


Fig. 3.

PLATE V.

FIG. 1.—*a, a.* Second grinding tooth of a horse, natural size, with considerable development of the roots transformed into two spheroidal swellings.

b, b. Portions of the maxillary bone sheathed in the tumor, and broken in its extraction.

c. Orifice conducting to the interior of an intradental cavity.

d, d. Circular groove corresponding to the alveolar arch, and forming a sort of strangulation between the tuberosity *a* and the swelling *e*, which is underneath.

f. Inferior surface of the crown of the tooth.

FIG. 2.—*Microscopic examination of the tumor, (300 diameters.)*—Represents part of a thin section of the tumor shown in Fig. 1. The tumor was formed jointly by a hypertrophy of the dental ivory and a hypertrophy or exostosis of the cement, the greatest part being formed of the substance of the cement.

a, b. Represents the ivory and its canaliculi—not ramified in this section—and terminating near the union of the ivory and enamel.

c, d, e. Exhibits the mammillated arrangement seen in the cement at certain points of the surface of union with the ivory or dentine. This arrangement, often very elegant under the microscope, is also met in the normal teeth.

g, h. Osteoplasts, or characteristic cavities of the cement. They are especially remarkable for their size in all the preparations taken from this piece.

f. Proper substance of the cement, or bone, in which the characteristic cavities are excavated. It is here, as always, homogeneous; little transparent, except when it is reduced to very thin laminæ.

Fig. 1



Fig. 2



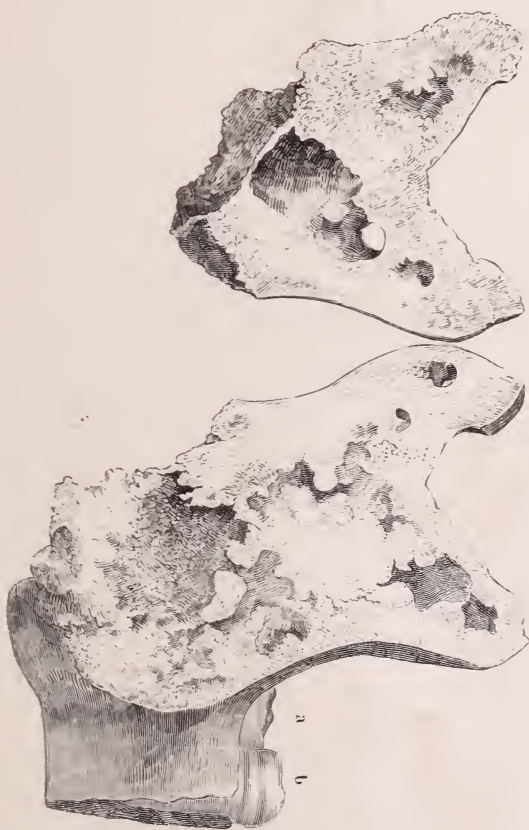


Fig. 3

PLATE VI.

FIG. 1.—Intramaxillary bone bearing the two permanent incisors, (*a, a,*) superposed, and exhibiting an anomalous development. The alveoli of the same infantile teeth are partly destroyed; this section formed the deposit mentioned, (Obs. VI. of this treatise.)

FIG. 2.—Tumor of the ramus of the inferior maxillary bone, affected with mollities ossium. At the surface are many openings of encysted abscesses; and the last molar, the crown of which extends slightly beyond the alveolar edges, and is developed in the thick part of the base of the coronoid apophysis.

FIG. 3.—Section of the ramus, showing the numerous abscesses that exist throughout its whole extent.

